AMATEUR RADIO CATALOG

SUMMER 1996

ORDER TOLL FREE: 1-800-558-0411

AMATEUR ELECTRONIC SUPPLY® INC.

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BBS 414-358-3472 • http://www.execpc.com/~aesham • aesham@execpc.com

AES® BRANCH STORES

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fax 216-585-1024

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1072 N. Rancho Drive
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1-800-634-6227
fax 702-647-3412

STORE HOURS
Monday thru Friday
9:00 AM to 5:30 PM
Saturday
9:00 AM to 3:00 PM

OVER 39 YEARS IN AMATEUR RADIO!

Young Terry, W9DIA
King of Traders

Terry & Ray Talk...

What is AES®?

Ray Grenier, K9KHW
Executive VP

Terry Sez... **Did you Know that our Giant Milwaukee Headquarters has over 54,000 sq. ft. of space! This means that AES® probably could fit 12 of our Competitor's Stores inside our facility and almost have room left over for a Packer/Bear football game!**

AMATEUR ELECTRONIC SUPPLY® is the Largest Dealers of Amateur (ham) Radio Equipment in the World. We have been around for nearly 40 years. Our stores are in 5 locations around the country, including our Headquarters in Milwaukee, Wisconsin. Our Comprehensive Inventory includes a Complete line of HF and VHF/UHF amateur transceivers, power supplies, (all) accessories, antennas, feedline, rotors, and amplifiers. We take Trade-ins and have a Large Stock of High Quality, fully bench tested Used equipment available in all locations. In addition, we have Shortwave Radios and Antennas for the SW listener; Scanners, Books and Magazines for the Radio Enthusiast. Our order entry system is **fully computerized** and all of our stores are linked by **direct digital line** enabling shipments to be made from each other's inventory as needed, usually the Same Day!

For almost 40 years, we have been innovators! We give you Free WATS lines, Large Complete Stocks to choose from; including (all) Accessories, Fair prices, Same-day Shipments in Extra-Heavy cartons, and most important; our In-House Service Departments. It's a fact, that just one of our stores has more inventory on hand than the combined inventory of other companies with multiple locations. We always stock in-depth on all product lines, not just "Cherry-Pick" popular items.

Twice each year, around Dayton Hamvention time, and late October, we produce and mail to our established **Customers**, at no charge, this comprehensive, full-color catalog which is considered to be the "bible of the industry". A smaller, 36 page Price Update Flyer is mailed between major catalog productions in mid-August and early February. We also maintain a BBS, an e-mail address and a page on the world-wide web, in order to keep you informed.

If you expect us to be around, we must make a small profit. On major items our mark-up is minimally over cost and our prices are set in the catalog.

Dealers that sell cheaper than AES® usually do not stick around for the long haul. A good recent example is the Dealer in Missouri who went to a lot of Hamfests and Sold Cheap. Where is he today? He's out of business! We're planning on being around for another 40 years, so it's up to you, our valued customers, to support us. In return, we will **continue to Support You**.

Say that you can save $20 bucks on a radio from a Small Discounter, or at a Hamfest. Where are you going to get it Serviced when you need it? Some of these guys don't even have Full-Time Store Fronts, much less a Service Department and are sometimes very hard to find after the sale, when you may need help.

Before you make a major purchase, you owe it to yourself to check out the marginal dealers that sell cheaper than AES®. After you get their price, ask them if they have an In-House Service Department; or do they send their warranty work back to the factory, incurring intolerable delays for you and possible shipping damage.

We, at AES® maintain one of the Best In-House Service Departments in the entire World. Our technicians attend all available Factory Training sessions. No expense is spared to ensure that we will always have the best in service shops at all locations. Our technicians use the latest Hewlett-Packard test equipment, and whatever else they need to to the job, such as special soldering stations for products that use surface-mount technology and keep getting smaller.

Even though we charge $51.00 per hour (minimum 1-hour) for service work, it doesn't cover our actual costs. This is the reason why we limit our service only to items that we have sold. We will not service items purchased elsewhere, in or out of warranty. Our shops are devoted entirely to servicing our customers that have purchased the product from us. Even though you may be a very good AES® customer, under no circumstances will we service something that you have purchased elsewhere. We must limit our shop load in order to maintain a good turn-around time for our customers that have purchased their equipment from AES®.

73's! Terry, W9DIA & Ray, K9KHW (Radio Ray)

AES® Amateur Radio Equipment Price List SUMMER 1996

★ COMPLETE EQUIPMENT & ACCESSORY INVENTORIES ★ COMPETITIVE PRICING ★ FAST SHIPPING ★ TRADES ★ USED GEAR ★ SERVICE

Copyright© 1996 AMATEUR ELECTRONIC SUPPLY®

All prices and specifications are subject to change without notice. Due to foreign currency fluctuations, promotions, manufacturer's coupons, etc. prices may vary. Please confirm prices before ordering. **AES®** is not responsible for typographical errors or omissions.

CODES SHOWN NEXT TO PRICES

(T) • Item too large for UPS. Truck shipment only. No COD, send payment in advance or use charge card for merchandise; freight charges will be collected upon delivery

NOTE: Charges for truck shipments from 1-99 lbs are running a **minimum** of $80.00, plus local destination charges. It is advisable to contact a local freight office for a quotation.

(D) • **DISCONTINUED** by Manufacturer but still available from stock in limited quantities when this price list was published.

(†) • **TEMPORARY LOW PRICE** due to Special Purchase, overstock, etc. Quantities may be limited at price shown.

(Δ) • Item *not* discontinued by Manufacturer but probably will not be available from our stores when present stock sold out.

End of line STORE LOCATION CODES – means Close-out or Special items were at these stores: **(m)** Milwaukee; **(w)** Wickliffe; **(f)** Orlando; **(c)** Clearwater; **(v)** Las Vegas; **(*)** all stores

Flat-Rate SHIPPING INFORMATION

AMOUNT OF ORDER	UPS GROUND SHIPPING HANDLING & INSURANCE
Up to $100.00	$4.00
$100.01 to $500.00	$8.00
$500.01 to $1499.99	$12.00
$1500.00 & UP	$16.00

• Shipping/Handling/Insurance Charges are based on the Order Total at the time of the initial shipment. Changes made to a partially shipped order will not affect the shipping charges • Order amount is Pre-Coupon & Pre-Tax • COD fees Not Included, add $6.50 per carton • Includes adequate insurance • Backorders shipped prepaid at AES® expense • Other UPS shipping methods are charged at Regular Rates with No Credit for UPS Ground rate • Does Not Apply to Truck or DROP-SHIPMENTS

ADI/Premier (ADI)

	Reg	Sale
AT-200 2.5w 2m FM HT/batt/cgr/TTP	$199.95	164.95
AT-200HP 5w 2m FM HT/batt/cgr/TTP	219.95	189.95
AT-400 2.5w 440 FM HT/batt/cgr/TTP	214.95	179.95
AT-400HP 5w 440 FM HT/batt/cgr/TTP	234.95	199.95
ARC-12 Smart charger	89.95	
CHA-072 Wall charger for 7.2v battery	12.95	
CHA-120 Wall charger for 12v battery	12.95	
CPB-262/CBP-262 Batt holder; 6 AA nicads	19.95	
PCA-145 Cig lighter adapter cable	14.95	
RBP-072 7.2v 700ma battery	49.95	
RBP-120 12v 600ma battery	69.95	
SLC-200/SLC-200-S 2.5w carrying case	18.95	
SLC-200-L 5w carrying case	20.95	
SPM-100 Spkr/mic; ADI/Standard/Yaesu	27.95	
SPM-101 Speaker/mic for Kenwood	29.95	

ADI/Premier - continued

	Reg	Sale
SPM-200 Lapel mic/earph; ADI/Sta/Yaesu	18.95	
SPM-201 Lapel mic/earphone for Kenwood	19.95	
SPM-300 Spkr/mic/lock/volume; ADI/Sta/Yae	34.50	
SPM-301 Spkr/mic/PTT lock/volume; Ken	36.50	
SPM-400 Ear/mic; ADI/Standard/Yaesu	25.95	
SPM-401 Ear/mic for Kenwood	26.95	
SPM-500 Throat/mic/earph; ADI/Sta/Yae	59.95	
SPM-501 Throat/mic/earphone for Kenwood	61.95	
AR-146 50w 2m FM Xcvr w/TTP mic	279.95	249.95
AR-446 35w 440 FM Xcvr w/TTP mic	345.95	299.95

AEA (AEA)

NOTE: Page 49 (DSP-232) specs & Page 65 (Isoloop specs) have been transposed in error

	Reg	Sale
DC-1 Cigarette lighter cord Δw	$ 7.00	5.95
KK-1 Keyboard keyer for IBM PC	199.00	189.95
KKCOM Optional utility program	49.00	
DATA CONTROLLERS		
PK-12 1200 bps VHF/UHF packet controller	$119.00	109.95
100K/PK-12 100K MailDrop upgrade; PK-12	50.00	
AC-1 12vdc 600 ma adaptor	21.00	
APRS Adapter cable for GPS Rcvr to TNC	30.00	
PK-96/18K 9600 baud packet controller/32K RAM	239.00	209.95
100K 100K memory upgrade for PK-96	50.00	
PK-96/100K 9600 baud controller/128K RAM	289.00	259.95
PC-Pakratt-88 IBM prog; PK12/88/96 Dv	49.00	29.95
PC Pakratt Lite Packet only terminal prog	49.00	
PK-232MBX Controller/int VHF/HF modem/FAX	379.00	299.95
PK-900 Multi-mode digital controller w/FAX	569.00	469.95
DSP-232 Multi-mode data controller	495.00	429.95
DSP-1232 Single port multi-mode controller	850.00	
DSP-2232 Switchable ch multi-mode controller	1100.00	999.95
9600 bps modem card option for PK-900	75.00	
AC-4 12vdc 1A power supply	32.00	
ACARS Aircraft data reception software	90.00	
ACARS/900 Air data reception soft; PK-900	50.00	
AEA-FAX III-900 PK-900/IBM FAX software	75.00	
MacRATT III Mac program; sys 6.05-7-7.5	99.00	
PC-Pakratt II w/FAX IBM prog; 12/88/232	69.00	64.95
PC-Pakratt for Windows 2.0 IBM; 12/88/232	129.00	119.95
Log Windows 3.0 Program for IBM	49.00	
Extra PK-232 to radio open ended **cable**	9.00	
IH CABLE PK-232 - Icom/Yaesu/Alinco HT	25.00	
IM CABLE PK-232 - Icom 8-pin mic cable	25.00	
IW CABLE PK-232 - Icom IC-W2A cable	25.00	
KA CABLE PK-232 - Kenwood 13-pin cable	30.00	
KH CABLE PK-232 - Kenwood HT cable	25.00	
KM CABLE PK-232 - Kenwood/Ali 8-pin mic	25.00	
YM CABLE PK-232 - Yaesu 8-pin mic cable	25.00	
Technical manual; PK-232	25.00	
WeFax-256 WX FAX prog; DSP-1232/2232	129.00	119.95
AEA-FAX III Facsimile & wire photo program	149.00	99.95
IDR-96 5w 441.05MHz data Xcvr 9600 baud	499.00	449.95
IDR-96/Custom 440 data 9600 spec freq spec order	525.00	479.95
Morse University II Morse code Windows software	39.95	

AEA - continued

	Reg	Sale
PCB-88 IBM plug-in packet adapter Dmwfcv	179.00	99.95
ANTENNAS		
IsoLoop 10-30 150w 10-30MHz 43" loop/50'cable	$499.00	449.95
50' shielded **loop cable**, **new** style	29.00	
100' shielded **loop cable** w/connectors	39.00	
IT-1 IsoTuner Automatic tuner for IsoLoop	279.00	239.95
HALO-6 6m loop antenna	69.00	
IsoPole 144 2m base station antenna	63.00	
IsoPole 220 220MHz base station antenna	63.00	
IsoPole 440 440MHz base station antenna	95.00	
HR-1 2m ½ wave telescopic whip w/BNC	29.00	
HR-2 220MHz ½ wave telescopic whip w/BNC	29.00	
SWR-121 HF Antenna performance analyzer	399.00	349.95
SWR-121V/U VHF/UHF ant performance analy	469.00	399.95
AA.COM SWR curve IBM soft; 121/121V/U	75.00	69.95
Carrying Case For SWR-121/121V/U	29.00	
MISCELLANEOUS		
ARE-60/HL-60 HamLink Phone controller	$269.00	239.95
ARE-61/HL-61 Interface cable for Icom	50.00	
ARE-62/HL-62 Interface cable for Kenwood	50.00	
ARE-63/HL-63 Interface cable for Yaesu	60.00	
OP-80 OpLink For fast CW/stereo headset	130.00	109.95
RL-60 Radio Link HF remote via handheld	329.00	289.95
ST-1 Satellite tracking hardware/software	399.00	369.95
AVT Master Amiga Video Sys; SSTV/FAX Δv	319.00	129.95
DM-1 2m/220/440 FM deviation meter	169.00	159.95
World Clock	25.00	

AES (AES)

Pentium 100 100MHz Intel/1.2Gig/8M/.28SVGA		1499
Pentium 133 133MHz Intel/1.6Gig/16M/.28SVGA		2349
Quad Speed CD-ROM drive		129.95

Call Ron or Dick at Milwaukee for **AES® COMPUTERS**
The Two Year Parts and Labor Limited Warranty is handled by: ASC Computers of West Allis, Wisconsin.

ARRL (ARR)

100 1996 Radio Amateur's Handbook/software	$ 38.00	
110 200 Meters and Down (early ham radio)	8.00	
115 AX.25 (packet radio)	8.00	
120 Advanced Class License Manual	12.00	
126 Antenna Book w/IBM software	30.00	
130 Antenna Compendium	10.00	
135 Antenna Compendium II	14.00	
138 Antenna Compendium IV w/software	20.00	
140 Antenna Impedance Matching	20.00	
145 Complete DX'er	12.00	
150 Data Book	15.00	
156 Extra Class License Manual	12.00	
160 FCC Rule Book	12.00	
165 First Steps in Radio	6.00	
170 General Class License Manual	12.00	
180 Grid Locator Atlas	5.00	

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STORE HOURS
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9:00 AM to 5:30 PM
Saturday
9:00 AM to 3:00 PM

OVER 39 YEARS IN AMATEUR RADIO!

ARRL - continued

		Reg	Sale
182	Ham Radio Made Easy	15.95	
185	Hints and Kinks	10.00	
190	Hostage in the Woods	6.00	
195	Introduction to Morse Code cassettes	10.00	
198	Introduction to Radio Frequency Design	30.00	
200	Log Book	3.50	
205	Low Profile Amateur Radio	8.00	
210	Morse Code the Essential Language	6.00	
215	Morse Tutor software for IBM	20.00	
220	Night Signals	5.95	
225	North American Repeater Atlas	10.00	
230	Novice Notes: The Book	6.00	
236	Now You're Talking II (new ham)	19.00	
240	Operating Manual	22.00	
251	1996 Passport to Worldband Radio	19.95	
252	Packet: Speed, More Speed & Applications	15.00	
253	Practical Packet Radio	15.95	
255	QST binder	12.00	
260	RFI-How to Find It & Fix It	18.00	
265	Radiogram message blanks .....pad	2.00	
271	1996-97 Repeater Directory	8.00	
272	Repeater Directory software	14.95	
275	Satellite Anthology	10.00	
280	Satellite Experimenter's Handbook	20.00	
285	Set 1 5-10 wpm code practice cassettes	10.00	
290	Set 2 10-15 wpm code practice cassettes	10.00	
295	Set 3 15-22 wpm code practice cassettes	10.00	
300	Set 4 13-14 wpm code practice cassettes	10.00	
305	Solid State Design	15.00	
310	Technician Class License Manual	6.00	
316	Technician Exam Review Guide	9.95	
320	Transmitter Hunting	19.00	
328	Understanding Basic Electronics	20.00	
330	W1FB's Antenna Notebook	10.00	
335	W1FB's Help for New Hams	10.00	
340	W1FB's QRP Notebook	10.00	
345	World Map	12.00	
350	Yagi Antenna Design	15.00	
354	Your Mobile Companion	12.00	
356	Your VHF Companion	8.00	
357	Your Ham Antenna Companion	10.00	
358	Your Packet Companion	8.00	
361	Your HF Digital Companion	10.00	

TOMPKINS BOOKS

360	CQ Ghost Ship	$ 5.00	
365	DX Brings Danger	5.00	
370	Death Valley QTH	5.00	
375	Grand Canyon QSO	5.00	
380	Murder by QRM	5.00	
385	SOS at Midnight	5.00	

RSGB PUBLICATION

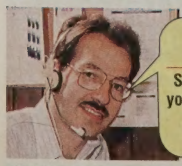
405	Radio Communications Handbook	$ 35.00	

AIM (AIM)

24-7735P	Coax stripper; RG-58/59/62	$ 38.25	19.95
24-7736P	Coax stripper; RG-59/6/8281	38.25	19.95
24-7739P	Coax stripper; RG-8/11/213	62.85	29.95
37-208	6-socket wall surge protector .....Dm	32.85	6.95
37-503	6-socket surge/EMI/RFI filter	41.85	29.95
38-305	500ma 3/4.5/6/7.5/9/12vdc adapter	14.85	12.95
38-312	1.2A 1.5/3/4.5/6/7.5/9/12vdc adapt	43.50	24.95
38-384	4A power supply, 5A surge	97.50	39.95
64-3UUP	3' RG-58 w/PL-259s	6.75	
64-6UUP	6' RG-58 w/PL-259s	7.95	
64-9UUP	9' RG-58 w/PL-259s	8.85	
64-12UUP	12' RG-58 w/PL-259s	10.50	
64-18UUP	18' RG-58 w/PL-259s	11.70	

ALINCO (ALI)

ACCESSORIES FOR DISCONTINUED HT'S



Dale, N9BRX
Milwaukee Store manager

Satisfaction is my concern. If you have a problem, call me at
1-800-558-0411

ALINCO - continued

		Reg	Sale
EBP-12NA	12v 700ma quick charge batt Δm	$ 61.00	
EDC-2	Cig charging cord; EBP-7NAZ .....Δm	9.00	
EDC-8Z	Mobile DC pwr cable w/filter .....Δmv	20.00	14.95
EDC-16	Cigarette lighter cable .....Δmfv	12.00	
EDC-22	Wall charger for EBP-12NA .....Δmfv	22.00	
EDC-26	DC cord/cgr w/filter; EBP-10NA ..Δmfv	17.00	14.95
EDH-1	Dry cell battery case .....Δmw	14.00	
EJ-6U	Tone squelch unit .....Δm	42.00	29.95
ESC-10	Case; DJ-162T w/EBP-10NA .....Δmfv	21.00	14.95
DJ-F1T	2w 2m FM HT/batt/cgr/TTP .....Dmwfv	349.00	188.95
DJ-F1T/HP	5w 2m FM HT/batt/cgr/TTP Dmwfv	379.00	208.95
DJ-180T	2w 2m FM HT/batt/cgr/TTP	201.00	179.95
DJ-180TH	5w 2m FM HT/batt/cgr/TTP	224.00	204.95
DJ-480T	440 FM HT/batt/cgr/TTP	245.00	219.95
DJ-582T	2.5w 2m/440 FM HT/batt/cgr/TTP	404.00	359.95
DJ-582TH	5w 2m/440 FM HT/batt/cgr/TTP	426.00	384.95
EBC-3	Belt clip	5.00	
EBC-5	Shoulder belt w/soft case .....Δmwfv	54.00	19.95
EBC-6	Mobile bracket for DJ-180T	16.00	
EBP-14N	7.2v 400ma thin nicad; F1T Δmwfv	62.00	29.95
EBP-16N	7.2v 700ma nicad; DJ-F1T Δmwfv	47.00	39.95
EBP-18N	12v 600ma nicad batt; DJ-F1T	74.00	
EBP-20N/EBP-26N	Extra 7.2v 700ma; 180/580	47.00	
EBP-22N/EBP-28N	12v 600ma batt; 180/580	70.00	
EBP-24N	7.2v 1200ma batt; 180/580/582T	78.00	
EDC-24	Wall cgr; 14/16/18/20/22/24N	24.00	
EDC-34	Quick charger .....Dmwfv	103.00	
EDC-45	Quick charger (not for F1)	99.00	
EDC-8B	Mobile DC power cable w/filter	21.00	
EDC-36	Mobile DC power cable/filter .Dmwv	21.00	
EDC-37	13.8v power cable	7.00	
EDC-43	Cig lighter cable	8.00	
EDC-49	Battery charger; EBP-20/22/24N	23.00	
EDH-5	AA dry cell pack	14.00	
EDH-11	AA alk pack; DJ-180/580/582T	10.00	
EDH-12	DC jack adapter; DJ-180T	10.00	
EJ-12U	Tone decode unit; DJ-F1T	51.00	
EJ-14U	50 ch memory unit; DJ-180T	21.00	
EJ-15U	200 ch memory unit; DJ-180T	29.00	
EME-4	Ear/microphone w/PTT	34.00	
EME-6	Earphone	11.00	
EME-10/EME-10K	Headset w/VOX/PTT	71.00	
EME-11	Ear/microphone w/PTT/VOX	52.00	
EMS-2Z	Speaker/mic	44.00	
EMS-8Z	Remote speaker/mic	48.00	
ESC-15	Soft case for DJ-F1T	17.00	
ESC-17	Soft case; 580/582T w/EBP-20N	14.00	
ESC-18	Soft case; DJ-180T w/EBP-20N	14.00	
ESC-19	Soft case; DJ-180T w/EBP-22N	18.00	
ESC-26	Soft case; 580/582T w/EBP-22/24N	14.00	
DJ-G1T	2m FM HT/batt/cgr/TTP/ch scope	281.00	249.95
	FREE EJ-16U from Alinco - DJ-G1T thru 6/30/96		
EBC-6	Mobile bracket	16.00	
EBP-30N	7.2v 700ma nicad battery	50.00	
EBP-31N	7.2v 1200ma nicad battery	79.00	
EBP-32N	12v 722ma nicad battery	95.00	
EDC-8B	Mobile DC power cable w/filter	21.00	
EDC-37	13.8v power cable	7.00	
EDC-52	Quick charger	119.00	
EDC-55	Wall cgr; EBP-30/31/32N	23.00	
EDH-14	Dry cell battery case	15.00	
EJ-16U	Tone squelch unit	57.00	
EME-12	Headset w/earphone/mic/VOX	70.00	
EME-13	Headset w/ear bud/mic/VOX	70.00	
EME-15	Earphone/mic w/VOX	55.00	
EMS-8Z	Remote speaker/mic	48.00	
EMS-9	Speaker/mic	44.00	
ESC-23	Soft case for EBP-30N	16.00	
ESC-24	Soft case for EBP-31N/32N	21.00	
DJ-191T	2m FM HT/batt/cgr/TTP	246.00	219.95
DJ-191TH	5w 2m FM HT/batt/cgr/TTP	269.00	239.95
	FREE EDC-36 from Alinco - DJ-191T/TH thru 6/30/96		
DJ-G5TH	2m/440 FM HT/EBP-36N/cgr/TTP	460.00	414.95
DJ-G5TY	2m/440 FM HT/EBP-37N/cgr/TTP	438.00	399.95
	FREE EMS-9 & ESC-28, 29 OR 30 from Alinco - DJ-G5TH/DJ-G5TY thru 6/30/96		
EBC-6	Mobile bracket	16.00	
EBP-33N	4.8v 650ma nicad battery	63.00	

ALINCO - continued

		Reg	Sale
EBP-34N	4.8v 1200ma nicad battery	82.00	
EBP-35N	7.2v 900ma nicad battery	97.00	
EBP-36N	9.6v 650ma nicad battery	67.00	
EBP-37N	4.8v 700ma nicad battery	34.00	
EDC-8B	Mobile DC power cable w/filter	21.00	
EDC-60	Quick charger	94.00	
EDH-16	Dry cell battery case	10.00	
EJ-28U	CTCSS decoder unit; DJ-191T/TH	42.00	
EME-6	Earphone	11.00	
EME-12	Headset w/earphone/mic/VOX	70.00	
EME-13	Headset w/ear bud/mic/VOX	70.00	
EMS-8Z	Remote speaker/mic	48.00	
EMS-9	Speaker/mic	44.00	
ESC-28	Soft case for EBP-33N	10.00	
ESC-29	Soft case for EBP-37N	10.00	
ESC-30	Soft case for EBP-34N/35N/36N	10.00	
DR-M06T	10w 6m FM Xcvr w/TTP mic	381.00	339.95
EJ-19U	Memory expansion unit	28.00	
EJ-20U	Tone squelch unit	41.00	
DR-130T	50w 2m FM Xcvr w/TTP mic	314.00	279.95
	FREE EJ-19U & packet radio cable OR EJ-20U & packet radio cable from Alinco - DR-130T thru 6/30/96		
DR-130TPKT	50w 2m FM/no mic/9600 w/mod	257.00	229.95
DR-150T	50w 2m FM Xcvr w/TTP mic/9600	336.00	299.95
	FREE EJ-20U from Alinco - DR-150T thru 6/30/96		
CC-150	Cloning cable for DR-150T	14.00	
DR-430T	440 FM Xcvr w/TTP mic	361.00	329.95
EJ-19U	Memory expansion unit	28.00	
EJ-20U	Tone squelch unit	41.00	
EJ-8U	DTMF squelch; DR-590/592/599 ....Δm	47.00	
DR-600TB	45/35w 2m/440 FM/TTP ...Dmwfcv	618.00	539.95
EDC-19	9.75' separation mounting kit	40.00	
EDC-20	16' separation mounting kit	46.00	
EJ-7U	Tone squelch unit	69.00	
DR-610T	50/35w 2m/440 FM Xcvr/TTP mic	674.00	599.95
	FREE EDS-3 & EBC-8 from Alinco - DR-610T thru 6/30/96		
EBC-8	Front control head bracket	16.00	
EDS-1	Junction box w/ext spkr, mic jacks	56.00	
EDS-2	3 meter extension cable for EDS-1	23.00	
EDS-3	5 meter extension cable for EDS-1	39.00	
EJ-23U	Additional memory unit	35.00	
EJ-24U	Tone decoder unit	85.00	
DR-605T	50w 2m/35w 440 FM Xcvr/TTP	512.00	459.95
EJ-24U	Tone decoder unit	85.00	
EHM-36A/EMS-10	TTP mic; DR-1200T only	54.00	
DX-70T	Compact HF Xcvr w/6m	1024.00	899.95
	FREE EBC-9 & EDS-4 from Alinco - DX-70T thru 6/30/96		
DM-1350/DM-1350-1	30A 110V ps/35A surge	198.00	179.95
EBC-8	Front control head bracket	16.00	
EBC-9	Mobile bracket	32.00	
EDS-4	Rem mt acc kit w/5' cable, 2 covers	31.00	
EDS-5	Microphone extension cable	28.00	
EDX-1	Manual antenna tuner	299.00	259.95
EMS-14	Desk top microphone	113.00	

ALPHA DELTA (ALP)

R-T	200w 500 MHz lightning protector	$ 32.95
	Extra **arc-plug** cartridge for **R-T**	12.95
R-T/N	200w thru 1 GHz type N protector	39.95
	Extra **arc-plug** cartridge for **R-T/N**	12.95
HV	2kw 500 MHz lightning protector	35.95
	Extra **arc-plug** cartridge for **HV**	15.95
HV/N	2kw thru 1 GHz type N protector	42.95
	Extra **arc-plug** cartridge for **HV/N**	15.95
LT	200w thru 10m 'T' SO-239 protector	22.95
	Extra **arc-plug** cartridge for **LT** or LT/N	17.95
Delta-2	500 MHz 2-pos coax switch/protector	49.95
Delta-2/N	1.3 GHz 2-pos type N switch/protector	64.95
Delta-4	500 MHz 4-pos coax switch/protector	79.95
Delta-4/N	1.3 GHz 4-pos type N switch/protector	89.95
D-4	Extra arc-plug; Delta-2/2N/4/4N	9.00
DX-80	80m 134' complete dipole antenna	49.95
DX-40	40m 67' complete dipole antenna	39.95
DX-20	20m 34' complete dipole antenna	39.95
DX-A	160-80-40m twin sloper antenna	59.95
DX-B	160-80-40-30m 60' sloper ant	69.95
DX-CC	80-10m 5-band 82' no trap, no tuner dipole	119.95
DX-DD	80-40m 82' Delta Dipole antenna	89.95

ALPHA DELTA - continued

	Reg	Sale
DX-EE 40-10m 4-band 40' no trap, no tuner dipole	99.95	
DX-SWL AM broadcast-13m 60' SWL sloper ant	79.95	
DX-Ultra AM broadcast-30MHz 80' SWL dipole	119.95	
Delta-C Kit w/ctr ins/2 end ins/static protect	29.95	
SEP Extra arc-plug cart; DX-Ultra/Delta-C	15.95	
Delta-CIN Antenna end insulator .....each	1.00	

ALPHA NEONX (ALN)

Call Sign Neon sign; specify call, spec order*	$199.95	
Call w/On Air Neon sign; specify; spec order*	249.95	

*Neon signs are custom made and drop-shipped from the factory and are not returnable.

AMECO PUBLICATIONS (AME)

4-01 Code Course Instruction Booklet	$ 1.50	
6-01 Mastering the Morse Code	2.50	
12-01 General Class FCC Test Manual	9.95	
17-01 Extra Class FCC Test Manual	5.95	
23-01 Novice Theory Course	6.95	
26-01 Advanced Class FCC Test Manual	9.95	
27-01 Novice Class FCC Test Manual	5.95	
28-01 Technician Class FCC Test Manual	5.95	
78-01 Codeless Technician FCC Test Manual	9.95	
102-01 Amateur Radio Theory Course	7.95	
EN-1 Novice Class Exam	1.95	

CODE COURSES - CASSETTE TAPES

100-T Junior code tape, 0-7½ wpm	$ 5.95	
101-T Senior code tapes, 0-18 wpm	10.95	
103-T Advanced code tape, 8-18 wpm	5.95	
104-T Extra Class code tape, 20 wpm	5.95	
105-QT General Class QSO code course tape	5.95	
106-QT Extra Class QSO code course tape	5.95	
107-PC-2 IBM Morse Code Course, version 2.0	29.95	
NP-1 Novice Code & Theory Course	10.95	

CODE PRACTICE OSCILLATORS & CODE KEYS

OCM-2K Code oscillator & CW monitor kit	$ 19.95	
OCM-2W Wired oscillator & CW monitor	24.95	
K-1 Bakelite type key	9.95	
K-4 Brass type key	14.95	

PREAMPLIFIERS

TPA Tunable preamp & indoor active ant	$ 76.95	69.95
P-9T Power supply for TPA	9.50	
PT-3 2-54 MHz transceiver preamp	124.95	119.95
P-12T Power supply for PT-3	9.95	

DUMMY LOADS & FILTERS

DL-1500 1500w dummy load	$ 59.95	
DL-1500F 1500w dummy load w/fan	99.95	
HP-75T 75 ohm high-pass filter	12.95	
HP-300T 300 ohm high-pass filter	12.95	

AMERITRON (AMR)

AL-80B 1kw PEP out linear (3-500Z)	1195.00	1069
AL-82 1.5kw PEP out linear (2 3-500Zs)	2095.00	1769
AL-800 1250w PEP out linear (3CX800A7)	1595.00	1429
AL-800H 1.5kw PEP out linear (2 3CX800A7)	2295.00	2059
AL-811 600w PEP out linear (3 811As)	699.00	629.95
AL-811H 800w PEP out linear (4 811As)	849.00	759.95
AL-1200 1.5kw PEP out linear (3CX-1200A7)	2195.00	1849
AL-1500 Linear amplifier (8877)	2695.00	2269
ALS-500M 600w PEP out solid state mob amp	799.00	679.95
ALS-600 700w PEP out solid state amp w/ps	1299.00	1099
ATR-15 1.5kw antenna tuner	399.00	349.95
ICP-120 120v inrush protector	79.00	
ICP-240 240v inrush protector	79.00	
QSK-5 Stand alone T/R switch	349.00	299.95
QSK-5PC PC board kit; T/R switch	249.00	209.95
CF-5 Cooling fan for QSK-5	39.95	
RCS-4 4-pos wireless remote coax switch	139.00	129.95
RCS-8V 160-2m 5-pos remote coax switch	149.00	139.95

Note: RCS-8V requires 8-wire control cable.

Antenna Specialists (ASP)

VHF/UHF ANTENNAS

AP-143 2m on glass cellular look-alike ant	$ 65.00	59.95
APR151.3 2m 3db on glass antenna	49.25	44.95
AP-453 440 on glass cell look-alike ant ..Dmfv	65.00	29.95
KAV-382 On glass replacement mtg kit	9.95	

Ant Specialists - continued

HOLE PLUGS

ASC-34 For 1⅝" hole ....Dw	$ 4.75	49¢
ASC-37 For ⅞" hole ....Dmfv	2.25	1.95
ASC-39 For ⅞" hole ....Dmwf	2.25	29¢

Antenna Supermarket (ANT)

Eavesdropper* 60-11m trap dipole SWL ant	$ 79.95	
*Specify **SO-239** or **twin**-lead		
SWL Sloper 120-11m SWL antenna	79.95	

ARTSCI (ART)

Amateur Handbook	$ 14.95	
Lost Users Manuals	19.95	
Riding the Airwaves with Alpha & Zulu	14.95	
US Repeater Mapbook 96/97 edition	9.95	
US Repeater CD-ROM info+U.S. hams/96/97	29.95	

ASTATIC (AST)

10DA-L Dynamic mic head (no stand or cable)	$ 69.99	49.95
D-104-L Crystal mic head (no stand or cable)	42.99	39.95
T-UG9 Amplified desk stand	52.00	49.95
T-UG9-D104 Amp mic, 6-wire w/stand	99.99	79.95
Night Eagle Brass/black crystal desk mic	129.99	99.95
MC-320 Crystal mic cartridge for D-104	19.99	
MC-321 Ceramic mic cartridge for D-104	19.99	

ASTRON (ASR)

RS-4L 3A ps, 4A surge, w/cig lighter socket	$ 57.95	49.95
RS-7A 5A power supply, 7A surge	68.95	59.95
RS-10A 7.5A power supply, 10A surge	85.95	69.95
RS-12A 9A power supply, 12A surge	99.95	79.95
RS-12S 9A ps, 12A surge, w/speaker	112.95	89.95
RS-20A 16A power supply, 20A surge	121.95	99.95
RS-35A 25A power supply, 35A surge	197.95	149.95
RS-35A/220V 220v 25A ps, 35A surge	217.75	169.95
RS-50A 37A power supply, 50A surge	285.95	219.95
RS-70A 57A power supply, 70A surge	339.95	259.95
RS-20M 16A ps w/meters, 20A surge	144.95	119.95
RS-35M 25A ps w/meters, 35A surge	204.95	169.95
RS-50M 37A ps w/meters, 50A surge	314.95	239.95
RS-70M 57A ps w/meters, 70A surge	372.95	289.95
VS-20ML Variable 16A ps/meters, 20A surge	170.95	139.95
VS-35M Variable 25A ps/meters, 35A surge	238.95	189.95
VS-50M Variable 37A ps/meters, 50A surge	330.95	259.95
RM-35M 25A rack mt ps/meters, 35A surge	318.95	249.95
RM-50M 37A rack mt ps/meters, 50A surge	354.95	279.95
RM-60M 50A rack mt ps/meters, 55A surge	467.95	359.95
12/115 200w solid state 12vdc-115vac inverter	86.95	64.95
2412 9A 22-32vdc to 13.8vdc converter	73.95	59.95
2412-20 16A 22-32vdc to 13.8vdc converter	103.95	79.95

AZDEN (AZD)

PCS-7500H 50w 6m FM Xcvr w/TTP mic	389.95
PCS-7800H 50w 10m FM Xcvr w/TTP mic	389.95
PCS-7000H 50w 2m FM Xcvr w/TTP mic	339.95
PCS-7200 25w 220 FM Xcvr w/TTP mic	409.95
PCS-7300H 35w 440 FM Xcvr w/TTP mic	439.95
PCS-9600D 35w 440 FM Xcvr/9600 baud	649.95
AZ-11 5w 10m FM HT/batt/cgr/TTP	379.95
AZ-21A 5w 2m FM HT/batt/cgr/TTP	299.95
AZ-61 5w 6m FM HT/batt/cgr/TTP	379.95
AD-16 DC power cord for HT	9.95
ARD-6M 6m HT gain antenna	34.95
ARD-10M 10m HT gain antenna	39.95
BP-11A Extra 5w battery	59.95
LC-16 Soft case	19.95
SDX-514W Speaker/mic	49.95
DM-10 20 ohm headphones for HF radio	49.95
HS-03 Boom mic/headphones for HF Xcvr ...†	49.95
PTT-01 Switch for boom mic/headphones	39.95
PTT-02 VOX for boom mic/headphones	49.95

B & K (B&K)

AUDIO TEST INSTRUMENT

2005A RF generator	$275.00	234.95

CAPACITANCE METERS

810B Capacitance meter	$ 99.00	89.95
815 Tester (cap/res/Hfe/diode/batt)	99.00	84.95

B & K - continued

	Reg	Sale
820 .1pF to 1F capacitance meter	279.00	229.95
830 200 pF to 200mF autoranging meter	339.00	289.95
875A Digital LCR meter	199.00	169.95
878 Universal hand-held LCR bridge	275.00	219.95

COUNTERS

1803C 100 MHz frequency counter	$209.00	169.95
1806 100 MHz multi-function counter ....D	249.00	214.95
1807 1.3GHz 1 ppm frequency counter	299.00	259.95
1823 175 MHz universal counter	399.00	339.95
1856A 2.4 GHz 1 ppm multi-function ctr	499.00	399.95

CRT RESTORER/ANALYZERS

480 CRT restorer/analyzer	$739.00	629.95
490 Tri Dynamic restorer/analyzer	1049.00	899.95

DIGITAL PRODUCTS

DP-21 Digital logic probe	$ 34.00	29.95
DP-51 Digital probe ....Dm	95.00	49.95

EPROM PROGRAMMERS

840 EPROM programmer	$229.00	199.95
841 4-socket EPROM programmer	299.00	259.95
842 Universal programmer, PC card interface	849.00	729.95
843 Universal prog, parallel port interface	995.00	849.95

GENERATORS

3001 Audio generator	$ 79.00	66.95
3026 5 MHz sweep/function gen w/dig disp D	629.00	499.95
4010 2 MHz function generator	229.00	194.95
4011 5 MHz function generator w/counter	284.00	239.95
4017 10 MHz func gen w/counter/sweep	369.00	314.95
4040 20 MHz func gen/ctr/sweep/AM/FM	499.00	424.95

INSULATION TESTERS

305 Ins tester, 1000 megohms, 500vdc applied	$129.00	109.95
306 Ins tester, 100 megohms, 500vdc applied	129.00	109.95
307 Multi-range analog insulation tester	189.00	159.95
308 Multi-range digital insulation tester	259.00	219.95

HIGH VOLTAGE PROBE

HV-44 Direct-reading 40kV DC probe	$109.00	89.95

ISOLATION TRANSFORMER

TR-110 Isolation transformer	$219.00	189.95

MULTIMETERS (ANALOG)

114A 20,000 ohms/volt analog multimeter	$ 42.00	39.95
117 Pocket size analog multitester	13.00	
214 30,000 ohms/volt analog multimeter Dm	55.00	34.95
214A 30,000 ohms/volt analog multimeter .D	55.00	46.95
300 Insulation tester	129.00	109.95

MULTIMETERS (DIGITAL)

320 600A AC clamp meter	$ 79.00	69.95
330 750A AC multi-function clamp meter	89.00	79.95
340A 300A multi-function clamp meter	109.00	89.95
350A 1000A multi-function clamp meter	149.00	129.95
366 600A AC/DC multi-func clamp meter ...D	179.00	154.95
367 2000A AC/DC clamp meter	169.00	149.95
369 700A AC/DC true RMS clamp meter	199.00	169.95
388A Test Bench DMM, 0.5% accuracy	119.00	99.95
389 Test Bench DMM, 0.25% accuracy	139.00	109.95
390 Test Bench DMM, 0.1% accuracy	159.00	134.95
391 Test Bench DMM, 0.05% accuracy	179.00	149.95
2405 Mini Pro DMM	27.00	
2406 Mini Pro DMM w/temperature	49.00	44.95
2407 Min Pro autoranging DMM w/bargraph	55.00	49.95
2700 Credit-card size bargraph DMM	34.00	29.95
2703A Tool kit DMM, basic model, 0.5%	39.00	34.95
2704A Tool kit DMM w/cap/transistor/diode	59.00	49.95
2706 Tool kit DMM, 2704A plus temperature	79.00	69.95
2707 Tool kit DMM, 2704A plus logic & freq	89.00	76.95
2831A Digital bench multimeter	299.00	249.95
2832 3½-dig 0.5% lab multimeter	219.00	189.95
2833 4½-dig 0.05% true RMS multimeter	400.00	339.95
2835 3¾-dig 0.5% bench type LCD DMM	270.00	229.95
2860A 3½-dig 0.5% ruggedized DMM	99.00	84.95
2870 Survivor DMM w/bargraph, true RMS	149.00	129.95
3000 Autobench DMM	270.00	229.95
TLA-20 Autobench test lead set	269.00	249.95

OSCILLOSCOPES

1422 20 MHz mini scope ....D	1395.00	1099

B & K - continued

	Reg	Sale
1541C 40 MHz 6" dual trace scope	799.00	679.95
2000 Autobench oscilloscope	795.00	674.95
2120 20 MHz dual trace oscilloscope	549.00	449.95
2125 20 MHz dual time base oscilloscope	646.00	519.95
2160A 60 MHz dual trace delayed sweep	1099.00	939.95
2190A 100 MHz three trace delayed sweep	1599.00	1359
2260 60 MHz analog scope/cursors/readouts	1399.00	1169
2522A Digital storage oscilloscope	1099.00	929.95
2560 60MHz DSO, cursors/readouts/RS232	2395.00	2029

POWER SUPPLIES

1604A Portable isolated AC supply	$114.00	99.95
1646 0-16V, 0-10A power supply ....Dm	499.00	329.95
1651 Power supply; (2) 0-24vdc, .5A; 5V, 4A	429.00	359.95
1653 0-150V, 2A isolated AC ps	319.00	279.95
1655 0-150V, 3A isolated AC ps/leak tester	529.00	449.95
1670 Triple output DC power supply	199.00	169.95
1680 Fixed 6A 13.8vdc power supply	50.00	44.95
1682 Fixed 15A 13.8vdc power supply	99.00	89.95
1686 High current DC power supply	199.00	169.95
1688 3-14VDC, 25A non. power supply	299.00	259.95
1705 0-30VDC, 0-1A LED readout ps	299.00	259.95
1710 0-30VDC, 0-1A power supply	229.00	194.95
1711 0-60VDC, 0-2A power supply	309.00	264.95
1715 0-60VDC, 0-2A LED readout ps	379.00	324.95
1730 0-30VDC, 0-3A power supply	315.00	269.95
1735 0-30VDC, 0-3A LED readout ps	380.00	329.95
1740 0-60VDC, 0-4A power supply	499.00	419.95
1743 0-35VDC, 0-6A LED readout ps	499.00	419.95
1746 0-16VDC, 0-10A power supply	499.00	419.95
1760 (2) 0-30V, 2A; (1) 4-6.5V, 5A LED ps	649.00	549.95

SEMICONDUCTOR TESTERS

510 Portable transistor tester	$239.00	199.95
520B Industrial transistor tester	399.00	339.95
541 Component comparator ....Dm	449.00	279.95
545 Circuit analyzer analog signature	2950.00	2499
560A Programmable PC board tester	2995.00	2549
AK-560A Software package for 560A	495.00	399.95

SPECTRUM ANALYZERS

2615 500 MHz spectrum analyzer	1795.00	1529
2620 500 MHz spec analyzer w/tracking gen	2195.00	1869
2625 1.05GHz spec analyzer w/AM/FM demod	2595.00	2199
2630 1.05GHz spec an w/demod, tracking gen	3395.00	2889

TELEPHONE TEST INSTRUMENTS

1045B Telephone product tester	$599.00	499.95
1050 Telephone product analyzer	2260.00	1899

VIDEO TEST INSTRUMENTS

1211D Portable color generator	$235.00	199.95
1249B NTSC generator w/RGB	569.00	489.95
1251 NTSC signal generator	1195.00	999.95
1260 Deluxe NTSC signal generator	1995.00	1699
1280 Computer monitor video generator	429.00	369.95

ACCESSORIES

CP-3 AC/DC clamp meter	$ 86.00	79.95
PR-28 HV multimeter probe w/std dual banana	59.00	
PR-32 RF detector/demod scope probe w/BNC	59.00	
PR-37G Gray dlx 10:1 direct BNC probe .....Dm	54.50	34.95
PR-37R Red dlx 10:1 direct BNC probe .....Dm	54.50	34.95

Other accs available on special order. B & K stocked only at Milwaukee. Call Ron Glisch for B & K.

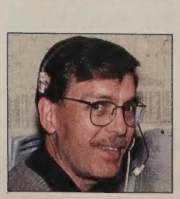
B & W COAX SWITCHES (B&W)

CSR-5G 5-position, side connectors	$ 51.50	49.95
CS-6G 6-position, for desk/wall mounting	51.50	49.95

Note: Above switches provide grounding of unused terminals, & are supplied w/face plates & knobs.

LOW-PASS FILTER

FL-10/1500 1.5-30 MHz, 1kw, 52 ohms	$ 50.00	



Mike, N9BRX
Milwaukee Store
We're the Largest Ham Dealer with a FULL SERVICE Department!
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B & W - continued

ANTENNAS

	Reg	Sale
AP-10 57" portable 40/20/15/10/6/2m ant	$ 69.95	
AT-55 40/20/15/10m 55' trap antenna	79.95	74.95
AT-110 80/40/20/15/10m 110' trap antenna	89.50	84.95
AT-110K As above, but kit	76.95	69.95
AS-160 160/80/40/20m 137' trap dipole	149.50	139.95
AS-80 80/40/20m 78' trap dipole	115.75	109.95
AS-40 40/20/15/10m 40' trap dipole	149.50	139.95
AS-20 20/15/10m 23' trap dipole	115.75	99.95
AXS-160 160/30m 96' trap dipole	115.75	99.95
AXS-80 80/40/15m 72' trap dipole	115.75	99.95
AC-3.5-30 80-10m 8-band 90' dipole	198.00	179.95
AC-1.8-30 Continuous 1.8-30 MHz antenna	198.00	179.95
BWD-1.8-30 1.8-30 MHz 90' folded dipole	198.00	179.95

BELDEN (BEL)

52 OHM COAXIAL CABLE

8216 RG-174 (sub-miniature)	per ft.		26¢
8216	100 ft. Roll	37.29	24.95
8216	500 ft. Roll	129.87	89.95
8216	1000 ft. Roll	259.74	169.95
9201 RG-58 (solid center)	per ft.		20¢
9201	100 ft. Roll	29.74	18.95
9201	500 ft. Roll	109.89	79.95
9201	1000 ft. Roll	216.45	139.95
8240 RG-58U (solid center)	per ft.		26¢
8240	100 ft. Roll	38.20	24.95
8240	500 ft. Roll	131.00	89.95
8240	1000 ft. Roll	262.00	169.95
8259 RG-58AU (stranded center)	per ft.		29¢
8259	100 ft. Roll	43.00	26.95
8259	500 ft. Roll	137.00	89.95
8259	1000 ft. Roll	276.00	169.95
8219 RG-58AU (stranded, foam)	per ft.		33¢
8219	100 ft. Roll	57.25	29.95
8219	500 ft. Roll	155.00	99.95
8219	1000 ft. Roll	387.50	189.95
8262 RG-58C (non-contaminating)	per ft.		36¢
8262	100 ft. cut		32.95
8262	500 ft. Roll	173.00	119.95
8262	1000 ft. Roll	346.00	219.95
9258 RG-8X (stranded, foam)	per ft.		39¢
9258	100 ft. Roll	81.25	34.95
9258	500 ft. Roll	217.56	109.95
9258	1000 ft. Roll	490.00	199.95
8237 RG-8U	per ft.		64¢
8237	100 ft. Roll	102.00	59.95
8237	500 ft. Roll	390.00	249.95
8214 RG-8U (foam)	per ft.		59¢
8214	100 ft. Roll	101.00	54.95
8214	500 ft. Roll	452.00	249.95
8214	1000 ft. Roll	898.00	479.95
9913 RG-8U (low loss)	100 ft. Roll	113.00	59.95
9913	250 ft. Roll	244.00	129.95
9913	500 ft. Roll	486.00	229.95
9251 RG-8A (non-contaminating)	per ft.		87¢
9251	100 ft. Roll	132.09	79.95
9251	500 ft. Roll	492.84	299.95
8267 RG-213 (non-contaminating)	per ft.		76¢
8267	100 ft. cut		69.95
8267	500 ft. Roll	597.18	299.95
8242 RG-9U (double shielded)	per ft.,m		4.95
8242	100 ft. Roll,m	715.00	349.95

75 OHM COAXIAL CABLE

8241 RG-59U (73 ohm, solid center)	per ft.		28¢
8241	100 ft. Roll	44.00	24.95
8241	500 ft. Roll	123.00	79.95
8241	1000 ft. Roll	246.00	149.95
8238 RG-11 (75 ohm, stranded center)	per ft.		79¢
8238	100 ft. Roll	124.32	69.95
8238	500 ft. Roll	470.64	279.95
8213 RG-11 (75 ohm, solid, foam)	per ft.		69¢
8213	100 ft. cut		59.95

BELDEN - continued

		Reg	Sale
8213	500 ft. Roll	360.00	239.95

ROTOR CABLE

8484 4-wire; 4-20 ga; U-105	per ft.		28¢
8484	100 ft. Roll	48.00	24.95
8484	500 ft. Roll	185.00	99.95
8484	1000 ft. Roll	370.00	189.95
8448 8-wire; 2-18, 6-22 ga; CD-45/HAM-IV	per ft.		49¢
8448	100 ft. Roll	103.75	44.95
8448	500 ft. Roll	412.50	169.95
8448	1000 ft. Roll	820.00	329.95
9405 8-wire; 2-16, 6-18 ga; AR-40/HAM-IV/T²X	per ft.		59¢
9405	100 ft. cut		54.95
9405	500 ft. Roll	585.00	249.95
9405	1000 ft. Roll	1167.50	489.95

ANTENNA WIRE

8000 No. 14 stranded ant wire	per ft.		21¢
8000	100 ft. Roll	30.50	17.95
8000	1000 ft. Roll	275.00	159.95

No. 8 ALUMINUM GROUND WIRE

8018 Multiples of **50** ft.	each	$ 19.00	12.95
8018	500 ft. Roll	150.00	99.95

Note: All above roll pricing is for rolls as shown only; all other lengths, even if more than roll length shown or a multiple of roll length shown, are sold at the per ft. price.

FOAM COAX w/PL-259s ON BOTH ENDS

9349 3' RG-58AU foam	$ 19.32	14.95
9350 15' RG-58AU foam	21.63	16.95
9347 20' RG-58AU foam, 1 PL-259 .....Dmv	19.32	5.95
9352 50' RG-58AU foam	32.13	24.95
9354 50' RG-8U foam	60.90	46.95
9355 75' RG-8U foam	84.00	64.95
9356 100' RG-8U foam	101.85	79.95

BELMERIT (BLM)

DM-10S 3½-digit dig multimeter w/case ...Dmv	$ 24.95	14.95
DM-3000 Wide range dig multimeter .....Dwv	54.95	29.95
DM-3050 Wide range dig multimtr/freq test Dmwv	59.95	36.95

BENCHER (BEN)

BY-1 Iambic keyer paddle w/black base	$ 79.95	74.95
BY-2 Iambic keyer paddle w/chrome base	99.95	94.95
BY-3 Iambic keyer paddle, gold plated	264.95	229.95
BY-4 Iambic paddle/blk base/gold components	159.95	139.95
ST-1 Single lever keyer paddle, black base	79.95	74.95
ST-2 Single lever kyr paddle, chrome base	99.95	94.95
ST-3 Single lever keyer paddle, gold plated	264.95	229.95
ST-4 Sgl lever paddle/blk base/gold components	159.95	139.95
RJ-1 Dlx hand key w/navy knob/black base	74.95	
RJ-2 Dlx hand key w/navy knob/chrome base	84.95	
ZA-1A 3.5-30 MHz 1:1 balun	37.95	
HWK Balun hardware kit for 2" boom	9.49	
YA-1 1kw low pass filter	59.95	

BIRD (BIR)

43 Thruline Directional wattmeter, SO-239s	$250.00	
4300-400 Peak reading conversion kit	121.00	
43P Peak reading directional meter, SO-239s	377.00	
4431 Wattmeter, variable RF tap, SO-239s	442.00	
Elements (Table 1) **50H-1000H** .....each	84.00	
Elements (Table 1) **2500H, 5000H** .....each	120.00	

Flat-Rate SHIPPING INFORMATION

AMOUNT OF ORDER	UPS GROUND SHIPPING HANDLING & INSURANCE
Up to $100.00	$4.00
$100.01 to $500.00	$8.00
$500.01 to $1499.99	$12.00
$1500.00 & UP	$16.00

• Shipping/Handling/Insurance Charges are based on the Order Total at the time of the initial shipment. Changes made to a partially shipped order will not affect the shipping charges • Order amount is Pre-Coupon & Pre-Tax • COD fees Not Included, add $6.50 per carton • Includes adequate insurance • Backorders shipped prepaid at AES® expense • Other UPS shipping methods are charged at Regular Rates with No Credit for UPS Ground rate • Does Not Apply to Truck or DROP-SHIPMENTS

BIRD - continued

	Reg	Sale
Elements (Table 1) 25-1000 MHz .....each	68.00	
Low-power elements (Table 2) .....each	90.00	

TABLE 1 – Standard Elements

Frequency Bands (MHz)

Power Range	2-30	25-60	50-125	100-250	200-500	400 1000
5 watts	—	5A	5B	5C	5D	5E
10 watts	—	10A	10B	10C	10D	10E
25 watts	—	25A	25B	25C	25D	25E
50 watts	50H	50A	50B	50C	50D	50E
100 watts	100H	100A	100B	100C	100D	100E
250 watts	250H	250A	250B	250C	250D	250E
500 watts	500H	500A	500B	500C	500D	500E
1000 watts	1000H	1000A	1000B	1000C	1000D	1000E
2500 watts	2500H					
5000 watts	5000H					

TABLE 2 – Low-Power Elements

1 watt	Cat. No.	2.5 watts	Cat. No.
25-30 MHz	025-1	25-30 MHz	025-2
30-35 MHz	030-1	30-40 MHz	030-2
35-40 MHz	035-1	40-50 MHz	040-2
40-50 MHz	040-1	50-60 MHz	050-2
50-60 MHz	050-1	60-80 MHz	060-2
60-80 MHz	060-1	80-95 MHz	080-2
80-95 MHz	080-1	95-150 MHz	095-2
95-125 MHz	095-1	150-250 MHz	150-2
110-160 MHz	110-1	200-300 MHz	200-2
150-250 MHz	150-1	250-450 MHz	250-2
200-300 MHz	200-1	400-850 MHz	400-2
275-450 MHz	275-1	800-1000 MHz	801-2
425-850 MHz	425-1		
800-1000 MHz	801-1		

800-2 2.5w 800-950MHz element .....Dmw	86.00	64.95
CC-1 Carrying case	45.00	
EC-1 Element case	35.00	
80F 5w dummy load w/type N female .....Dmf	72.00	49.95
8080 25w dummy load w/type N male QC	107.00	
8085 50w dummy load w/type N male QC	153.00	
4273 1.5-35 MHz variable RF sig sampler*	129.00	
4273-100 For Bird equipment installation	140.00	
4275 20-1000 MHz variable RF sampler*	124.00	
*2 QC connectors required - not included		
4275-100 For Bird equipment installation	140.00	
4304A 25-1000 MHz 500w wattmeter	494.00	

QUICK CHANGE CONNECTORS (QC)

4240-050 UHF female (SO-239) .....each	$ 8.00	
4240-179 UHF male (PL-259) .....each	45.00	
4240-062 Type N female .....each	8.00	
4240-125 BNC female .....each	19.00	
4240-132 BNC male .....each,Δmwf	54.00	19.95

Other Bird items available on special order

BUCKMASTER (BUC)

HamCall CD-ROM ham listings; IBM/Mac	$ 50.00	

BUTTERNUT (BUT)

HF-6VX 80/40/30/20/15/10m 26' vert ant	$247.00	199.95
HF-9VX 80/40/30/20/17/15/12/10/6m vert	306.00	249.95
A17-12 17 & 12m kit for HF-6VX	54.00	49.95
CPK Counterpoise kit	61.00	54.95
MPS Mounting post sleeve	8.00	
RMK-II Roof mounting kit w/radials	86.00	76.95
STR-II Radial kit only	54.00	49.95
TBR-160S 160m resonator for HF-6VX	89.00	79.95
HF-2V 80/40m 32' vertical	231.00	189.95
30-MRK 30m resonator for HF-2V	54.00	49.95
TBR-160S 160m resonator	89.00	79.95
HF-5B 2 el 20/17/15/12/10m butterfly beam	376.00	299.95

CES (CES)

410 Personal Patch interconnect .....Dmw	$250.00	169.95
SSI-68 Simplex autopatch .....Dwv	460.00	269.95
SDI-50 Dlx splx/dplx autopatch/rptr controller	760.00	399.95

CQ (CQX)

1996 Amateur Radio Calendar	$ 9.95	
1996 Radio Classics Calendar	9.95	
1996 **Amateur Radio Almanac**	19.95	
Beginners Guide to Amateur Radio	5.95	
Building and Using **Baluns** and Ununs	19.95	
Buyers Guide	5.95	

CQ - continued

	Reg	Sale
Contest Video Getting Started in Contesting	19.95	
DXing Video Getting Started in DXing	19.95	
Ham Sat Video Getting Started Amateur Satellites	19.95	
Ham Video Getting Started in Ham Radio	19.95	
Lew McCoy on Antennas	15.95	
Packet Radio Operator's Manual	15.95	
Packet Video Getting Started in Packet Radio	19.95	
Quad Antenna Book	15.95	
Shortwave Propagation Handbook	19.95	
Vertical Antenna Hand**book**	9.95	
VHF How To Book	15.95	
VHF Video Getting Started in VHF	19.95	
W6SAI HF Antenna Handbook	19.95	

CAMBRIDGE (CAM)

The Art of Electronics (book)	$ 59.95	

CENTAUR (CEN)

CP-1 Cricket Pulser Station tuning accessory	$ 67.00	
B11W10-50 1:1 3kw PEP balun for dipole	49.95	
B11Y10-50 1:1 3kw PEP balun for yagi	49.95	
B41Y10-50 4:1 3kw PEP balun for yagi	64.95	
B41LW10-50 4:1 ladder line to coax balun	64.95	

CIRCUIT WORKS (CIR)

Conductive Pen/CW2200STP	$ 11.95	

CLOCKS

AEA **World Clock**	$ 25.00	
BMI **972A** 12" 12-hour wall clock	28.00	
BMI **972AD** 14" 12/24-hour wall clock	32.00	
BMI **973A** 12" 24-hour wall clock	49.95	
MFJ **105B** 24-hour quartz wall clock	19.95	
MFJ **107B** 24-hour digital clock	9.95	
MFJ **108B** 24/12-hour dual disp digital clock	19.95	
MFJ **112** Deluxe world map clock	24.95	
MFJ **114** Large LED 24-hour clock	39.95	
MFJ **116** 24/12-hr LED clock/10 minute timer	14.95	

COAX SEAL (UNV)

104 ½" x 60" coax seal	$ 2.49	

COMET (CMT)

MOBILE ANTENNAS

B-10 2m/440 2.15db 12" cell look-alike ant	$ 39.95	
B-10NMO 2m/440 2.15db 12" cell look-alike NMO	39.95	
B-20 2m/440 2.15/5db 30" cell look-alike ant	56.95	
B-20NMO 2m/440 2.15db/5db 30" cell look NMO	56.95	
CA-220MR 220 4.2db 3' 3" fold-over ant	49.95	
CA-HV 40/15/10/6/2m 5' 10" mobile ant	139.95	129.95
L-14 20m loading coil for CA-HV	36.95	
CHL-28J 2m/440 3/5.5db 36" mobile ant	35.95	
CHL-28JNMO 2m/440 3/5.5db 36" NMO ant	35.95	
CHL-62S 2m/440 3.5/6db 42" mobile ant	49.95	
CHL-62SNMO 2m/440 3.5/6db 42" NMO ant	49.95	
CHL-350 10/6m 0/2.15db fold-over 7' ant	79.95	
CMW-202N 900 MHz 5.1db 18" type N ant	42.95	
CX-224 2m/220/440 2.15/3.2/5.5db 42" mobile	79.95	
CX-224NMO 2m/220/440 2.15/3.2/5.5db 42" NMO	79.95	
FL-7HA 40m 40" mobile antenna	82.95	
FL-14HA 20m 37" mobile antenna	82.95	
FL-28HA 10m 33" mobile antenna .....Dmwv	82.95	69.95
FL-50HA 6m 33" mobile antenna .....Dmfv	82.95	79.95
FS-74B 440/1.2 black 5.1/7.2db 22" N mob	79.95	
FS-92B 2m/440/1.2 2.1/4.1/6.8 23" type N	82.95	
HA-4S 40/15/12/10m 4' 5" mobile ant	199.95	179.95
L-14HS 20m loading coil for HA-4S	39.95	
HA-028 10m 33" ¼ wave mobile antenna	82.95	
HA-050 6m 33" ¼ wave mobile antenna	82.95	
HP-32 2m/440 3/5.5db 34" 350/250w ant	89.95	
SB-2 2m/440 2.15/3.8db 18" mobile .....Dmv	41.95	34.95
SBB-2 2m/440 2.15/3.8db 18" black mobile	39.95	
SB-2NMO 2m/440 2.15/3.8db 18" NMO ...Dmw	41.95	34.95
SBB-2NMO 2m/440 2.15/3.8db 18" blk NMO	39.95	
SBB-5 2m/440 3/5.5db 38" black mobile ant	59.95	
SB-5NMO 2m/440 3/5.5db 38" NMO .....Dwf	62.95	49.95
SBB-5NMO 2m/440 3/5.5db 38" black NMO	59.95	
SB-7 2m/440 4.5/7.2db 4' 7" mobile ..Dmwfv	85.95	69.95
SBB-7 2m/440 4.5/7.2db 4' 7" black mob ant	82.95	
SB-7NMO 2m/440 4.5/7.2db 4' 7" NMO ....Dmf	85.95	69.95
SBB-7NMO 2m/440 4.5/7.2db 4' 7" blk NMO	82.95	

COMET - continued

	Reg	Sale
SB-14 6m/2m/440 42" chrome mobile ant	79.95	
SB-15 6m/2m/440 2.15/4.5/7.2db 5' chr mob	99.95	
SBB-15 6m/2m/440 2.15/4.5/7.2db 5' Dmwfv	109.95	99.95
SB-25 2m 4.1db 4' 8" mobile antenna	49.95	
SB-25NMO 2m 4.1db 4' 8" NMO mobile ant	49.95	
SB-44 440 5db 29" mobile antenna	54.95	
SB-83 2m/440/cell 3/6/8.4db 35" type N ant	78.95	
SB-94 2m/440/1.2 2.15/5.1/7.2db 24" N ant	75.95	
SB-97 2m/440/1.2 3/6.8/9.6db 39" type N	89.95	
SB-123 1.2GHz 7.2db 24" type N mobile ant	54.95	
SB-214W 2m/220 3' 1.7/3.4db mob ant	62.95	
SF-245 2.4 GHz 7db 18" fg type N ant	61.95	
WP-57 2m/440 2.15/5.2db 30w on glass ant ..Dm	129.95	59.95
Z-750 2m/440 2.1/5.5db 39" theft resistant	62.95	
Z-780 2m/440 4.5/7.2db 5' theft resistant	82.95	

MOBILE MOUNTS, ETC

3D4M Mobile mt, 13' coax w/UHF connectors	$ 24.95	
3D4N Mobile mt, 13' coax w/type N	28.95	
3D5M Mobile mt, 16.5' coax w/UHF connectors	27.95	
5D4N Roof mount, 13' coax w/type N	31.95	
AD-10N N-NMO mount adapter	17.95	
AD-15M UHF-NMO mount adapter	17.95	
BMG-BB Med duty blk mag mt, BNC/BNC .....Df	39.95	22.95
BMG-M Med duty blk mag mt/UHF conn ....Dv	42.95	24.95
CA-MS1 Mag mt only, no coax; add 3D4M, etc	26.95	
CG-4M RS-2 gutter mount w/13.5' coax	29.95	
CK-3M Dlx 2-step 10' cable w/UHF connectors	33.95	
CK-3M5 Dlx 2-step 16.5' cable w/UHF connects	39.95	
CK-5N Dlx cable assembly w/type N	47.95	
CM-5M Hvy duty mag mt, coax, max 4' ant	39.95	
CQ-5M Dlx black QD trunk lip mt w/17' coax	66.95	
CR-5M Std coax assy, 16.5' coax, UHF conn	19.95	
CT-5M Trunk lip mount w/17' coax	39.95	
GR-5M Dlx tnk lip mt w/ coax; matches SB	67.95	
GR-5N Dlx N tnk lip mt w/ coax; matches SB	69.95	
MG-SRB Med duty mag mt w/UHF/BNC ..Dmwf	38.95	24.95
MG-SRM Med duty mag mt w/UHF conn .....Dwfv	36.95	22.95
MS-3FVMM Std duty mag mt w/UHF conn ...Dmf	43.95	34.95
MS-3FVNN Std duty mag mount w/type N	49.95	
MS-5LXNN Hvy duty magnet mt/type N .....Dw	61.95	49.95
RS-2 Small gutter mount	22.95	
RS-6 Pipe clamp mount	29.95	
RS-9 Trunk lip mount, no coax	13.95	
RS-20 Gtr mt; small/med ants, no coax ..Dmfv	29.95	19.95
RS-21 Adj 360 degree hatch/tnk mt, no coax	34.95	
RS-25 Adj pipe clamp mount, no coax .....Dm	38.95	29.95
RS-80 Adjustable gutter mt, no coax .....Dwf	32.95	19.95
RS-81 Adj trunk/hatch mount, no coax	34.95	
RS-500 Mini heavy duty gutter mount	29.95	
RS-520 Mini heavy duty trunk/hatch mount	29.95	
RS-820 Low profile trunk lip mount, no coax	45.95	
RS-850 Lug rack/to 1.75" pipe mt, no coax	42.95	
TS-1M Trunk lip mt w coax .....Dwfv	45.95	29.95
WS-1M Window clip mt w/UHF connectors	64.95	

BASE STATION ANTENNAS

CA-62DB 52-54MHz 6.5db 21.75' base ant	$164.95	154.95
CA-350DB 10/6m 2.15/6.5db 22' 7" ant	349.95	299.95
CA-712EF 440 9db 10' 5" base antenna	139.95	129.95
CA-1243E 440/1.2 GHz 6/8.4db 3' 4" type N	94.95	
CA-1243Z 440/1.2 GHz 9.4/12.8db 7' type N	161.95	149.95
CA-ABC21 2m 3.4db 4' 7" base antenna	59.95	
CA-ABC22A 2m 6,5db 9' 5" base/rptr ant	79.95	
CA-ABC23 2m 7.8 db 13' 4" base/rptr ant	135.95	124.95
CA-F22GF 136-175 6db 8' 10" tunable .....T	169.95	159.95
CA-F72GF 440-470 6db 3' 6" tunable ant	129.95	119.95
CA-Super22 220 6.6db 8' 2" base ant	159.95	149.95
CFC-771 900MHz 4.5' 7.14db N base/rptr	97.40	89.95
CMR-241 2m/440 4.5/7.2db 6.5' rptr ant	174.95	164.95
CX-333 2m/220/440 6.5/7.8/9db 10.25' ant	199.95	179.95
CYA-1216E 1.2GHz 16el 16.6db 4' 5" N beam	149.95	139.95
DS-15 6m/2m/440/900/1.2 discone antenna	129.95	119.95
FP-19 900 MHz 16db 7' 4" type N base/rptr	121.95	112.95
GP-3 2m/440 4.5/7.2db 5' 11" base/rptr ant	109.95	99.95
GP-6 2m/440 6.5/9db 10' 2" base/rptr ant	174.95	164.95
GP-9 2m/440 8.5/11.9db 17' 8" base/rptr	224.95	199.95

AMATEUR ELECTRONIC SUPPLY 1-800-558-0411 MasterCard VISA DISCOVER American Express Cards

COMET - continued

	Reg	Sale
GP-9N 2m/440 8.5/11.9db 17' 8" N base/rptr	224.95	199.95
GP-15 6/2m/440 3/6.2/8.6db 8' base	174.95	164.95
GP-21/CA-1221S 1.2 14.8db 8.5' N base/rptr	189.95	169.95
GP-24 2.4GHz 12.4db 2' type N base/rptr	229.95	199.95
GP-93 2m/440/1.2 4.5/7.2/10db 5' 7" type N	144.95	134.95
GP-98 2m/440/1.2 6.5/9/13.5db 9' 8" N ant	224.95	199.95
GPX-2010 2m/440 9.5/13.2db 23' 4" base/rptr	399.95	359.95
PYA-913 900MHz 13el 15.8db 4' 8" type N beam	169.95	159.95

DUPLEXERS AND TRIPLEXERS

CF-142 1.3-150/200-480 600/400w UHF/leads	$ 79.95
CF-360A 1.3-30/50-470 600w UHF w/leads	69.95
CF-360B 1.3-30/50-470 600w UHF/common lead	69.95
CF-413A 440/1.2 500/200w N w/leads	74.95
CF-413B 440/1.2 500/200w N/UHF/N leads	74.95
CF-416A 2m/440 800/500w UHF w/leads	54.95
CF-416C 2m/440 800/500w N/UHF/N leads	54.95
CF-416W 1.3-250/400-1400 400/200w N/leads	79.95
CF-530 1.3-90/125-470 600w UHF w/leads	74.95
CF-706 1.3-56/75-320 350w UHF w/leads	74.95
CF-4130A 440/1.2 500/200w N, no leads	74.95
CF-4160I 2m/440 800/500w UHF/UHF/N, no leads	52.25
CF-4160J 2m/440 800/500w SO239, no leads	58.95
CF-4160K 2m/440 800/500w all UHF, no leads	52.25
CFX-324A 2m/220/440 600w UHF w/leads	88.95
CFX-324B 2m/220/440 600w UHF, no leads	85.95
CFX-431A 2m/440/900-1.2 N/UHF/N/N, leads	89.95
CFX-431B 2m/440/900-1.2 N/UHF/UHF/N, leads	89.95
CFX-514 HF/2m/440 800/800/500w UHF w/leads	84.95
CFX-514J HF/2m/440 800/800/500w UHF, no leads	79.95
CFX-4310B 2m/440/900-1.2 N/UHF/N/N, no leads	84.95
CFX-4310C 2m/440/1.2; Kenwood TM-741A/941A	84.95
CFX-5140 HF/6m/2m/440 800/800/500w UHF, no leads	79.95

HT AND HAND-HELD SCANNER ANTENNAS

CH-32 2m/440 1.75" BNC antenna	$ 32.95
CH-72S 2m/440 0/3.2db 15" BNC antenna	29.95
CH-701X 2m/440/900 2/3.4/5.5db 19" BNC	54.95
CH-720C 2m/440 semi-rigid 0/3.8db 18" BNC	39.95
CH-722SA 2m/440 3/5.5db BNC whip ant	45.95
CY-1205 1.2 GHz 11db 7" BNC HT beam ...Dv	41.45
SH-55 2m/440 1.5/3.2db 15" BNC ant	33.95
SH-95 2m/440/1.2 1.5/2.15/5.5db BNC ant	49.95
SMA-3 2m/440 1.2/1.7db 9.75" SMA ant	41.95

SWR/POWER METERS & MINIMETERS

CM-120 1240-1300 MHz type N minimeter	$ 99.95	
CM-690 1.9-60 MHz 20/150w minimeter	79.95	
CM-720 140-150/430-450 MHz minimeter	79.95	
CM-720N 140-150/430-450 type N minimeter	84.95	
CM-900 900-920 MHz N minimeter .....Dmv	99.95	79.95
CM-903 900-920 MHz type N minimeter	99.95	
CMX-1 1.8-60 MHz 2000w SWR/pwr/rem head	209.95	189.95
CMX-2 1.8-200MHz 200w SWR/pwr/rem head	199.95	179.95
CMX-3 140-525 MHz 200w SWR/pwr/rem head	189.95	169.95
EKS-3 10' remote head extension cable	23.95	
CG-3000 118-530MHz 5/20/200w PEP meter	109.95	99.95

ACCESSORIES

CS-290P 1500MHz 150w N lightning protect	$ 39.95	
CS-400P 500MHz 250w lightning protect	34.95	
CSP-30 Mini speaker w/magnet mt	34.95	
CSP-80 Mini spkr w/mag mt, noise filt, mute	39.95	
CSW-20N 0-1300MHz N coax switch .....Dmf	99.95	64.95
HM-P2F Mini spkr/mic; Ali/Ico/Sta/Yae	32.95	
HM-P2K Mini spkr/mic for Kenwood	32.95	
HM-P4F Mini "HT" spkr/mic; Ali/Ico/Sta/etc	32.95	
HM-P4K Mini "HT" spkr/mic for Kenwood	32.95	
HM-P4Y Mini "HT" spkr/mic for Yaesu	32.95	

Communications Specialists (COM)

SS-32P/SS-32PA Prog CTCSS encoder	$ 28.95
SS-32SMP Hybrid micro-sized encoder	27.95
TE-32 32-tone CTCSS prog encoder box	49.95

TOM, N9UUJ
Milwaukee Store
Phone in during afternoon hours for least chance of finding busy lines!

COMMSPEC - continued

	Reg	Sale
TE-64 64-tone CTCSS/burst switch enc box	79.95	
TS-32P 32-tone CTCSS prog encoder/decoder	57.95	
DTD-1 DTMF decoder	59.95	
ID-8 Automatic morse station identifier	89.95	

CONNECTORS

AMPHENOL COAX CONNECTORS (AMP)

83-1SP-1050 Male coax plug (PL-259)	$ 1.86	
83-1SP Silver plated coax plug (PL-259)	2.87	
Van Gorden (VAN) **silver plated** teflon PL-259	2.99	
83-185 Reducer for RG-58 (UG-175)	.60	
83-168 Reducer; RG-59/RG-8X (UG-176)	.58	
83-1AP Right angle adaptor (UG-646)	5.69	
83-1J Double female adaptor (PL-258)	3.28	
83-1R Female chassis mt socket (SO-239)	2.15	
83-1H Hood for in-line use (UG-106)	3.95	
83-1T T-connector adaptor (M-358)	8.30	
83-877 Double male adaptor .....Dmwfcv	10.61	9.95
83-878 Single hole ⅜" chassis socket Δmwfv	2.58	1.49
31-002 BNC male connector for RG-58	3.38	
31-012 BNC male connector; RG-59/RG-8X	3.95	
31-221 BNC female chassis socket ..Δmwfcv	1.98	99¢
82-24 Type N female chassis mt socket	4.71	
82-61 Type N male connector for RG-8	7.34	
82-64 Type N right angle adaptor .....Δmwfv	19.96	9.95
82-202-1006 Type N male; Belden 8214/9913	7.02	
82-209 Type N female in-line for RG-8 Dmwfcv	7.10	4.95
34025 Type N male connector for RG-58	6.30	

AMPHENOL COAX ADAPTORS (AMP)

2900 SO-239 to BNC male adaptor	$ 9.48	
4400 SO-239 to type N male adaptor	13.13	
34125 Type N female - PL-259 adapt	19.99	
45250 Type N double male adaptor .....Dmwf	16.19	9.95
31-28 BNC female to PL-259 adaptor	8.93	
83-10 SO-239 to Motorola/phono plug ...Dmw	10.84	6.95

AIM COAX CONNECTORS & ADAPTORS (AIM)

25-7351 Chassis mt SO-239 double female	$ 5.10	
25-7365 BNC female to SO-239	4.40	
25-7420 BNC male to SO-239	3.30	
26-8010 Type N double female	5.20	
26-8011 Type N chassis mount	2.50	
26-8015 N male to SO-239	7.40	
26-8016 BNC female to N male	7.40	
26-8017 BNC male to N female	7.40	
27-8110 BNC female to RCA male	2.50	
27-8120 BNC female to PL-259	3.20	
27-8130 BNC double male	4.30	
27-8140 BNC T; 2 female, 1 male	3.90	
27-8142 BNC T, 3 male	8.40	
27-8450 BNC chassis mt, 4 screw holes	3.00	
27-8460 ⅜" hole BNC chassis mt	1.40	
27-8470 Dual BNC chassis mount	4.50	
29-3855 BNC female to SMA male	8.80	
29-4140 SO-239 to mini PL-259	5.00	

CONNECTORS UNLIMITED (CON)

306 SO-239 to BNC male adaptor	$ 2.76	
1721 7-pin DIN plug	1.38	
X-3013 8-pin female mic plug	3.11	

SWITCHCRAFT MICROPHONE CONNECTOR (SWI)

S-260 .206" 3-cond mic plug (Drake)	$ 8.50	

Switchcraft 1/4 " Plugs w/Solder Terminals (SWI)

267 3-conductor, plastic handle	$ 5.50	
237 3-cond, plastic handle, rt angle plug Δm	5.15	99¢
260 3-conductor w/screw terminals	6.50	
297 3-conductor, metal handle	6.55	
250 2-conductor, plastic handle	3.90	
220 As abv, w/screw terminals, rt angle plug	5.70	
280 2-conductor, metal handle	4.85	

SWITCHCRAFT PHONO-TYPE CONNECTORS (SWI)

3501MC Phono plug with cable clamps ...Δm	$ .90	39¢
3502 Shielded phono plug	2.35	
3507 RF-type phono plug	3.30	

VANCO MICROPHONE CONNECTORS (VCO)

CBC-2 2-pin female mic plug	$ 3.14
CBC-3 3-pin female mic plug	2.99
CBC-4 4-pin female mic plug	4.04

CONNECTORS - continued

	Reg	Sale
CBC-4P Panel mt 4-pin male	1.99	
CBC-5 5-pin female mic plug	3.87	
CBC-5P Panel mt 5-pin male	1.99	
CBC-6 6-pin female mic plug	4.06	
CBC-6P Panel mt 6-pin male	3.98	
CBC-8 8-pin female mic plug	5.89	
CBC-8P Panel mt 8-pin male	5.57	

KENWOOD DIN PLUGS (KEN)

7-pin DIN plug	$ 3.92
8-pin DIN plug	4.51
13-pin DIN plug	6.76

VANCO MINI PHONE PLUGS (VCO)

P-25 2.5mm sub-miniature phone plug	$ .99
P-35 3.5mm miniature phone plug	.99
P-12V Cig lighter plug w/leads	2.91

Connect Systems (CSY)

CS-700 Simplex interconnect	$485.00	359.95
CS-800 Full duplex patch & repeater controller	485.00	359.95
CS-900 Simplex interconnect	485.00	359.95
Private Patch V Multi-mode interconnect	615.00	419.95
9801 Elec voice delay (EVD); Private Pch V	141.50	129.95
8200D Full duplex patch/repeater controller	713.00	469.95
CD-1 DTMF/CTCSS/DCS decoder unit	265.00	219.95
CD-2 DTMF/CTCSS/DCS decoder unit/RS-232	325.00	269.95
CD-2P PC application program for CD-2	113.00	99.95
LT-2 Trunking decoder unit/RS-232	425.00	349.95
LT-2P PC application program for LT-2	113.00	99.95
CS-1688 Deluxe DTMF dec/controller ..Dmwfv	213.00	169.95

COYNE (COY)

HAM RADIO TEST GENERATOR FOR MACINTOSH

MacHam no code **Tech**nician, includes Novice 2A	$ 39.95
MacHam General	34.95
MacHam Advanced	34.95
MacHam Extra	34.95
MacHam Radio Morse Code training software	39.95

CROSS DEVICE (CRS)

STUF Coax connector waterproofing filler	$ 4.50

CROWN METAL (CRO)

SOLID BASE COPPERWELD ANTENNA WIRE

AN-122 100 feet No. 12	$ 24.95	
AN-123 150 feet No. 12	29.95	
AN-124 250 feet No. 12	49.95	
AN-126 500 feet No. 12	84.95	79.95
AN-128 1000 feet No. 12	154.95	129.95
AN-142 100 feet No. 14	19.95	
AN-143 150 feet No. 14	24.95	
AN-144 250 feet No. 14	29.95	
AN-146 500 feet No. 14	54.95	
AN-148 1000 feet No. 14	104.95	89.95
AN-181 250 feet No. 18	14.95	
AN-182 500 feet No. 18	24.95	

CUSHCRAFT (CUS)

VHF/UHF FM BEAMS (Vertical polarization)

A148-3S 2m, 3 el wideband beam	$ 46.00	43.95
A148-10S 2m, 10 el wideband beam	85.00	74.95
A148-20S 2 A148-10S vert stacked	233.00	186.95
A449-6S 440 MHz, 6 el, 3' boom, 10 db	59.00	56.95
A449-11S 440 MHz, 11 el, 4.5' boom, 13 db	83.00	74.95
A270-6S 2m/440, 3/3 el, 2.8' boom, 7.8 db	73.00	64.95
A270-10S 2m/440, 5/5 el, 6.17' boom, 10 db	99.00	79.95

FM VERTICAL STACKING KITS* (Adds 3 db)

A14-VPK Stacking kit for 2 A147-4 .....Dwv	$ 61.00	9.95
A14-SK Harness only for 2 A148-3S	48.00	44.95
A148-VPKS Stacking kit for 2 A148-3S/10S	108.00	89.95
A148-SK Harness only for 2 A148-10S	48.00	44.95
A449-VPKS Stacking kit; 2 A449-6S/11S	65.00	62.95
A449-SK Harness only for 2 A449-6S/11S	48.00	44.95

*Prices are for stacking kits only

FM RINGOS - 1/2 Wave Verticals - 3.75 db

AR-10 10m FM Ringo, 1000w	$ 71.00	62.95
AR-6 6m FM, 1000w	71.00	62.95
AR-2 2m FM, 1000w	50.00	39.95

CUSHCRAFT - continued

	Reg	Sale
AR-220 220 MHz FM, 500w	49.00	39.95
AR-450 440 MHz FM, 500w	49.00	39.95
AR-270 2m/440 MHz FM, 250w, 3.7/5.5db	88.00	69.95
AR-270B 2m/440 MHz FM base ant	128.00	99.95
RINGO RANGERS - FM Verticals - 6 db		
ARX-6 6m FM Ringo Ranger	$252.00	199.95
ARX-2 2m FM Ringo Ranger	60.00	49.95
ARX-2B 2m FM Ringo Ranger II, 1000w	73.00	59.95
ARX-220B 220 FM Ringo Ranger II, 500w	73.00	59.95
ARX-450B 440 FM Ringo Ranger II, 500w	73.00	59.95
ARX-450BN 440 FM Ringo Ranger II w/type N	88.00	74.95
HIGH PERFORMANCE 2m/440 VERTICALS		
ARX-270N 2m/440 9/12 db fg type N ant	$273.00	209.95
ARX-270U 2m/440 9/12 db fg SO-239 ant	273.00	209.95
FM 4-POLES (less vertical support mast)		
AFM-4DA 2m FM, 23' high, 6/9 db	$148.00	119.95
AFM-24DA 220 MHz FM, 15' high, 6/9 db	131.00	99.95
AFM-44DA 440 MHz FM, 8' high, 6/9 db	114.00	89.95
TWIST, OSCAR BEAMS (Horiz/Vert Polarization)		
A148-20T 2m 20el 10.8'bm 11.1db twist	$126.00	99.95
22XB 2m 22el 19.3' bm 14db circ beam/relay	290.00	199.95
719B 432 19 el beam	142.00	119.95
729B 432 29 el beam	220.00	189.95
738XB 432 38el 14.3'bm 15.5db circ w/relay	268.00	189.95
PS-4 Remote polarity switch .....Dmwf	150.00	79.95
PS-4A Remote polarity switch	150.00	119.95
BOOMER ANTENNAS		
617-6B 6m Boomer, 6 el, 34' boom, 14 db	$423.00	299.95
124WB 2m Boomer, 4 el, 4' boom, 10.2 db	73.00	64.95
13B2 2m Boomer, 13 el, 15' boom, 15.8 db	142.00	119.95
17B2 2m Boomer, 17 el, 31' boom, 18 db	246.00	199.95
26B2 2 13B2s vertically stacked	406.00	299.95
220B 220 Boomer, 17 el, 19' boom, 17 db	192.00	149.95
224WB 220 Boomer, 4 el, 3' boom, 10.2db	67.00	59.95
225WB 220 wideband Boom, 15el, 10'bm, 15.5db	149.00	119.95
BOOMER STACKING KITS*		
617-SK Harness, pwr divider for 2 617-6Bs	$160.00	119.95
22-SK Harness, power divider; 2 13B2s	98.00	79.95
22N-SK Harness, pwr divider; 2 17B2s	160.00	119.95
26B2-VPK Vertical polar kit; 2 13B2s	210.00	159.95
220-SK Harness, power divider for 2 220Bs	98.00	79.95
220-QK Quad stacking kit for 4 220Bs .....Dw	390.00	79.95
PD-2 Power divider for 2 13B2s	48.00	44.95
PD-2N Power divider for 2 17B2s	91.00	79.95
PD-4 Power divider for 4 13B2s	61.00	54.95
PD-4N Power divider for 4 17B2s	113.00	89.95
PD-222 Power divider for 2 220 Boomers	48.00	44.95
PD-224 Power divider for 4 220 Boomers	61.00	54.95

*Prices are for stacking kits only

VHF/UHF BEAMS (Horizontal polarization)		
A50-3S 6m, 3 el, 6' boom, 8 db, stainless hdwre	$110.00	89.95
A50-5S 6m, 5 el, 12' boom, 10 db, stainless hdwre	182.00	139.95
A50-6S 6m, 6 el, 20' boom, 11db, stainless hdwre	296.00	229.95
A144-7S 2m, 7 el, 8' boom, 10 db	60.00	54.95
A148-10S 2m, 10 el wideband beam	85.00	74.95
A430-11S 430 MHz, 11 el, 4' boom, 13 db	87.00	76.95

CUSHCRAFT - continued

	Reg	Sale
HORIZONTAL STACKING KITS* (Adds 3 db)		
A535-SK For 2 A50-3S/5S	$ 48.00	44.95
A561-SK For 2 A50-6S	63.00	54.95
A17-SK For 2 A144-7S, 79" spacing	48.00	44.95
A148-SK Harness only for 2 A148-10S	48.00	44.95
A41-SK For 2 A430-11S, 26" spacing	48.00	44.95

*Prices are for stacking kits only

CUSHCRAFT/SIGNALS MOBILE ANTENNAS		
CS-28M 10m magnet mt antenna	$ 64.00	59.95
CS-50 6m ¾" hole mt 3 db antenna	55.00	49.95
CS-50M 6m magnet mt 3 db antenna	64.00	59.95
CS-50T 6m trunk lip mt 3 db antenna	64.00	59.95
CS-1147M 2m ¼ wave magnet mt antenna	42.00	39.95
CS-147 2m ¾" hole mt 3 db antenna	55.00	49.95
CS-147M 2m magnet mt 3 db antenna	64.00	59.95
CS-147T 2m trunk lip mt 3 db antenna	64.00	59.95
CS-147A 2m coil & whip only	43.00	36.95
CS-220 220 ¾" hole mt 3 db antenna	55.00	49.95
CS-220M 220 magnet mt 3 db antenna	64.00	59.95
CS-220T 220 trunk lip mt 3 db antenna	64.00	59.95
CS-1450M 440 ¼ wave magnet mt antenna	42.00	39.95
CS-450 440 ¾" hole mt 5 db antenna	55.00	49.95
CS-450M 440 magnet mt 5 db antenna	64.00	59.95
CS-450T 440 trunk lip mt 5 db antenna	64.00	59.95
CS-450A 440 coil & whip only	43.00	36.95
CS-270M 2m/440 3.7/6 db magnet mt ant	87.00	72.95
CS-270A 2m/440 coil & whip only	58.00	49.95
MOUNTS ONLY FOR ABOVE MOBILE ANTENNAS		
CS-MG Magnetic mount	$ 29.00	
CS-TL Trunk lip mount	29.00	
PORTABLE ANTENNA FOR KENWOOD		
TK-440B 440 6" TK duck for Kenwood .....Dm	$ 17.00	1.95
SKYWALKER HF BEAMS		
40-2CD 40m, 2 el, 23' boom, 5.5 db	$626.00	429.95
20-4CD 20m, 4 el, 32' boom, 10 db	626.00	429.95
20-3CD 20m, 3 el, 20' boom, 8 db	438.00	319.95
15-4CD 15m, 4 el, 20' boom, 10 db	354.00	249.95
15-3CD 15m, 3 el, 14' boom, 8 db	305.00	219.95
10-4CD 10m, 4 el, 16' boom, 10 db	299.00	214.95
10-3CD 10m, 3 el, 10' boom, 8 db	232.00	169.95
TEN-3 10m, 3 el, 8' boom, 8 db	150.00	119.95
MULTIBAND VERTICAL ANTENNAS		
AV-80 75/80m 36' vertical antenna	$444.00	329.95
AV-5 80/40/20/15/10m 25' vertical	218.00	169.95
AV-3 20/15/10m 14' vertical	122.00	99.95
AP-8A 80-10m 8-band ruggedized vertical	289.00	219.95
APR-18A Radial kit	68.00	64.95
R-5 20/17/15/12/10m half wave vert ...Dmcv	382.00	279.95
R-7 40/30/20/17/15/12/10m vertical .Dmwcv	510.00	379.95
R-7000 40/30/20/17/15/12/10m vertical	510.00	379.95
R-80 80m kit for R-7000	155.00	129.95

$50 reward from Cushcraft for old Cushcraft traps & matching network, if applicable; OR $25 from Cushcraft for ANY other vertical traps - R-7000 thru 10/31/96

ROTATABLE DIPOLES		
D-3 20/15/10m World Ranger dipole	$244.00	179.95

CUSHCRAFT - continued

	Reg	Sale
D-3W 30/17/12m rotatable dipole	249.00	189.95
D-4 40/20/15/10m World Ranger dipole	331.00	249.95
D-40 40m World Ranger dipole	296.00	219.95
MULTIBAND BEAM ANTENNAS		
A-3S 20/15/10m, 3el, 14'bm, 8db, stainless hdwre	$497.00	329.95
A-3SDX Dlx 20/15/10m, 3el, stainless hdwre	550.00	389.95
A-743 40m or 10 MHz add-on kit; A-3/A-3S	155.00	129.95
A-4S 20/15/10m, 4el, 18'bm, 9db, stainless hdwre	597.00	419.95
A-744 40m or 10 MHz add-on kit; A-4/A-4S	155.00	129.95
A-3WS 17 & 12m, 3 el, 14' boom, 8 db	390.00	279.95
A-103 30m add-on kit for A-3WS	155.00	129.95
ASL-2010 13.5-32MHz 8el 18' bm 6.4db LP	828.00	569.95
AFB-2 160-10m 9-band balun	60.00	49.95
LIGHTNING ARRESTORS		
LAC-1 SO-239/PL-259 coax arrestor	$ 13.00	
LAC-2 SO-239/SO-239 coax arrestor	13.00	
LAC-4 200w SO-239 gas tube arrestor	43.00	39.95
LAC-4H 2kw SO-239 gas tube arrestor	47.00	42.95
LAC-4N 200w type N gas tube arrestor	55.00	49.95
LAC-4NH 2kw type N gas tube arrestor	57.00	52.95
LC-2 Extra 200w cartridge for LAC-4/4N	18.00	
LC-2KW Extra 2kw cartridge for LAC-4H/4NH	20.00	
5VB Vinyl connector boots .....pack of 5	13.00	

DCI (DCI)

146-4H 2m 200w bandpass filter	$ 89.00	
223.5-3H 220 200w bandpass filter	89.00	
445-10C 440 200w bandpass filter	109.00	

DC SALES (DCS)

Tenna Hitch Antenna mount for trailer hitch	$ 32.95	

DAIWA (DAI)

CS-201 2-position 600 MHz coax switch	$ 29.95	
CS-401 4-position 800 MHz coax switch	129.95	119.95
CN-101 1.8-150MHz SWR/power meter/light	119.95	89.95
CN-103M 140-525MHz SWR/power meter	129.95	99.95
CN-410M 3.5-150MHz 15/150w mob meter	119.95	89.95
CN-460M 140-450MHz 15/150w mob meter	119.95	89.95
CN-465M 140-450MHz 15/75w mobile meter	119.95	89.95
DP-810 1.8-150MHz digital SWR/power	269.95	229.95
DP-820 140-525MHz dig SWR/power meter	315.95	249.95

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DAIWA - continued

	Reg	Sale
DP-830 1.8-150/140-525 digital SWR/power	399.95	319.95
NS-660PA 1.8-150 30/300/3kw PEP SWR/pwr	249.95	199.95

DAVIS (DAV)

7400 Perception II indoor WX unit	$150.00	129.95
7415 Wizard II-S weather station	150.00	129.95
7425 Wizard III weather station	195.00	169.95
7440 Monitor II weather station	395.00	349.95
7852 Rain Collector II, 0.01"	75.00	69.95
7859 External temp/humd Sensor II; 7440	125.00	109.95
7862 Weatherlink IBM interface/software	165.00	139.95
7866 Weatherlink Mac interface/software	165.00	139.95
7867 Weatherlink IBM conversion kit	40.00	
7868 Weatherlink Mac conversion kit	40.00	
7870 Modem adapter for 7862/7866	6.00	
7873 Cig lighter power cord	9.00	
7876 4-conductor 40' extension cable	18.00	
7878 6-conductor 40' extension cable	22.00	
7880 8-conductor 25' junction box cable	15.00	
7881 8-conductor 50' junction box cable	25.00	
7882 8-conductor 100' junction box cable	45.00	
7890 Mast mount for anemometer	16.00	
7520 Stand alone 0.01" rain gauge/elec ctr	95.00	89.95

DIAMOND (DIA)

SWR/POWER METERS

SX-100 1.6-60 MHz 30/300/3kw PEP meter	$159.95	149.95
SX-200 1.8-200 MHz 5/20/200w PEP meter	119.95	109.95
SX-400 140-525 MHz 5/20/200w PEP meter	139.95	129.95
SX-600 Dual band 1.8-160/140-525 200w PEP meter	199.95	179.95
SX-1000 1.8-160/430-1300MHz 200w PEP meter	269.95	249.95

HT & HANDHELD SCANNER ANTENNAS

RH-3 2m/440 1.75" BNC mini HT duck	$34.95	
RH-77CA 2m/440 15" BNC rubber gain ant	34.95	
RH-205 2m ⅝ wave telescopic HT antenna	27.95	
RH-707 2m/440 8¼" tiltable BNC whip	37.95	
RH-770 2m/440 36" telescopic BNC whip	47.95	
RH-951 2m/440/1.2GHz 15" BNC rubber ant	57.95	

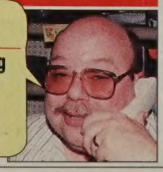
MONO-BAND MOBILE ANTENNAS

NR-124 1.2GHz 8.4db 25" type N mobile ant	$66.95	
NR-140A 220 4db 37" mobile antenna	60.95	
SG-2000A 2m 5.2db 62" mobile antenna	89.95	
SG-6000NMO 6m 2.15db 39" NMO mobile	84.95	

DUAL-BAND MOBILE ANTENNAS

CR-214S 2m/220 2.1/3.4db 37" mobile ant	$62.95	
CR-224A 2m/220 5/6db 69" mobile antenna	109.95	99.95
NR-72BNMO Black 2m/440 2.15db 14" NMO	46.95	
NR-73BNMO Blk 2m/440 2.15/5.5db 34" NMO	62.95	
NR-770HA 2m/440 3/5.5db 40" mobile ant	62.95	
NR-770HB Black 2m/440 3/5.5db 40" mobile	64.95	
NR-770HBNMO Blk 2m/440 3/5.5db 40" NMO	66.95	
NR-770HNMO 2m/440 3/5.5db 40" NMO mobile	64.95	
NR-770RA 2m/440 3/5.5db 39" mobile ant	62.95	
NR-770SA 2m/440 2.15db 16.5" mobile ant	41.95	
NR-790A 2m/440 4.5/7.2db 57" mobile ant	94.95	89.95
SG-7000A 2m/440 2.15/3.8db 19" mobile	73.95	
SG-7200NMO 2m/440 3.2/5.7db 38" NMO ant	88.95	
SG-7500A 2m/440 3.5/6db 41" mobile ant	86.95	
SG-7500NMO 2m/440 3.5/6db 41" NMO ant	88.95	
SG-7900A 2m/440 5/7.6db 62" mobile ant	124.95	114.95
TG-509 2m/440 2.1/5.5db 34" glass mt ant	199.95	179.95

TOP TRADES
for your Clean, Late Model HF & VHF/UHF Gear
CALL FOR OUR QUOTE TODAY!



Gary, KA9YTB
Milwaukee Store

We are famous for stocking ALL Accessories for the products that we sell!
1-800-558-0411

DIAMOND - continued

TRI-BAND MOBILE ANTENNAS

CR-320A 2m/220/440 2.15/3.8/5.5db 36"	$98.95	93.95
CR-627B 6m/2m/440 2.15/4.5/7.2db 60" ant	109.95	99.95
MV-3A 10/6/2m 57" UHF base mobile ant	84.95	
HVC-7 40m loading coil for MV-3A	39.95	
HVC-14 20m loading coil for MV-3A	39.95	
HVC-18 17m loading coil for MV-3A	39.95	
HVC-21 15m loading coil for MV-3A	29.95	
NR-2000NA 2m/440/1.2 3/6/9.7db 39" N mob	92.95	89.95

MAGNET MOUNTS

DP-SPM/58U Mag mt w/RG-58U; 45" max	$43.95	
DPK-4NM-M Hvy mag mt, Yaesu N, 45" max	49.95	
DPK-4NM-N Hvy dty mag mt, cbl, N, 45" max	49.95	
MCR-L Mag mt HT base/retractable cbl/BNC Dm	55.95	44.95
MCR-M Mag mt HT base w/coax/tiltable BNC	44.95	
SPM-35 Hvy duty mag mt, cable, 45" max	44.95	

TRUNK LIP MOUNTING KITS

K-200 Folding hatch/tnk mt; NR/SG ants	$39.95	
K-200KM Folding hatch/tnk mt/coax; NR/SG	69.95	
K-400 Hatch/trunk mt; NR/SG antennas	39.95	
K-400C Hatch/trunk mt w/coax; UHF mount	69.95	
K-400CNMO Hatch/trunk mt w/coax; NMO mt	69.95	
K-400-3/8C Trunk mount w/6' cable; ⅜-24	69.95	
C-110 10' extension cable for K-400-3/8C	14.95	
K-400M Hatch/tnk mt w/cable; NR/SG .....Dwv	79.95	
K-400N Hatch/trunk mt w/coax & type N	74.95	
K-400NMO Dlx hatch/tnk mt/coax; NMO .Dwfv	67.95	
K-600M Tilt angle trunk mt w/cable	69.95	
K-600N Tilt angle tnk mt w/N/cable .....Dmwf	74.95	
K-600P Tilt angle trunk mt w/cable, Yaesu N	72.95	
K-601M SO-239 hideaway trunk mt, 6' coax	69.95	
K-601NMO NMO hideaway trunk mt, 6' coax	69.95	
C-110 10' extension cable for K-601 mts	14.95	

GUTTER MOUNTS & KITS

K-300 Folding gutter mt; NR/SG antennas	$39.95	
K-300C Gutter mt w/cable; UHF mount	69.95	
K-300KM Folding gutter mt w/coax; NR/SG	67.95	
K-300M Gutter mt w/coax; NR/SG ants Dmwfv	79.95	69.95

MIRROR & LUGGAGE RACK MOUNTS & KITS

K-540 Mirror/luggage rack mount	$39.95	
K-540KM Mirror/luggage rack mt w/coax	67.95	
K-550 Luggage mt; new mini vans (use GLP)	49.95	
K-550KM Luggage mt w/SO-239 base/coax	69.95	

MOUNTING GROUP HARDWARE

C-101 SO-239 mt, 6.5' RG-316 low-loss coax	$29.95	
C-110 10' ext cable; C-101/K-601/K-400-3/8C	14.95	
C-211 SO-239 mt, 6.5' coax, 10' coax entend	39.95	
GLP-5 UHF base mtg group hrdwr; mini coax	10.95	
GLP-5N UHF mtg grp hrdwr; mini coax, Yae N	13.45	
GLP-58 UHF base mounting group hardware	10.45	
NMO-UHF Adapter to NMO; not for SG, 45" max	23.95	

MONO-BAND BASE STATION ANTENNAS

DP-GH62 6m 6db 21' base antenna	$157.95	147.95
F-22A 2m 6.7db 10.5' base antenna	114.95	104.95
F-22J 143.5-146.5MHz 6.7db 10.5' base ant	114.95	104.95
F-23A 2m 7.8db 15' base antenna	172.95	162.95
F-23C1 148-154MHz 7.8db 15' comm base	183.95	159.95
F-23J 143.5-146.5MHz 7.8db 15' base ant	172.95	162.95
F-142A 220 MHz 5.5db 6' base antenna	136.95	124.95
F-718A 440 11.5db 15' type N base antenna	246.95	226.95
F-718C2 460-472MHz 11.5db 15' N comm	261.95	239.95
F-718J 428-442MHz 11.5db 15' N base ant	246.95	226.95
F-718L 420-430MHz 11.5db ATV N base ant	246.95	219.95
F-1230A 1.2GHz 13.5db 10.5' type N base ant	178.95	164.95

DUAL-BAND BASE STATION ANTENNAS

U-200 440/1.2GHz 8.3/11.7db 6' N base ant	$141.95	129.95
U-300A 440/1.2GHz 8.6/13.2db 8.3' N base ant	178.95	159.95
X-50A 2m/440 4.5/7.2db 5.6' base antenna	125.95	115.95
X-200A 2m/440 6/8db 8.3' base antenna	167.95	157.95
X-300A 2m/440 6.5/9db 10.2' base ant	183.95	173.95
X-500HNA Hvy duty 2m/440 8.3/11.7db 17.8' N ant	269.95	249.95
X-510MA 2m/440 8.3/11.7db 17.2' base ant	219.95	199.95
X-510NA 2m/440 8.3/11.7db 17.2' type N ant	219.95	199.95
X-510NJ 143.5-146.5/428-442MHz 17.2' N	219.95	189.95
X-700HA 2m/440 9.3/13db 24' base ant	439.95	399.95
X-2200A 2m/220 6/7.8db 11.5' base ant	183.95	173.95

DIAMOND - continued

TRI-BAND BASE STATION ANTENNAS)

D-130J 25-1300 MHz 200w discone ant	$101.95	94.95
U-5000A 2m/440/1.2GHz 4.5/8.3/11.7db 6' N	167.95	157.95
V-2000A 52-54MHz/2m/440 2.1/6.2/8.4db 8.3'	172.95	162.95
X-3200A 2m/220/440 6/7.8/8db 10' base	241.95	221.95
X-6000A 2m/440/1.2 6.5/9/10db 10.5' N	219.95	199.95

DUPLEXERS & TRIPLEXERS

MX-37 HF-440/1.2 100/50w N duplexer	$74.95	
MX-37N HF-440/1.2 100/50w N dplxr .Dmwfv	60.95	49.95
MX-62M HF-6m/2m, 12" cables duplexer	77.95	
MX-72D HF-2m/440 400/150/100w duplexer	52.95	
MX-72DN As MX-72D, w/type N on 440	52.95	
MX-72H As MX-72D, w/12" cables	58.95	
MX-72J As MX-72D, all SO-239	58.95	
MX-72N As MX-72D, type N on 440, 12" cables	58.95	
MX-214 2m/220 150/100w w/12" cables	73.95	
MX-214D As MX-214, no cables	73.95	
MX-324 2m/220/440 triplexer	99.95	94.95
MX-324D As MX-324, no cables	99.95	94.95
MX-2000 HF-6m/2m/440 400/400/250w triplexer	94.95	89.95
MX-2000D As MX-2000, no cables	99.95	94.95
MX-3000 HF-2m/440/1.2 400/200/100w triplexer	94.95	89.95
MX-3000D As MX-3000, no cables	89.95	
MX-3000DN As MX-3000, type N on 440, 1.2	89.95	
MX-3000N As MX-3000, type N, 12" cables	94.95	89.95

ACCESSORIES

CA-23R DC-1GHz 200w N lightning protect .... Dw	$39.95	19.95
CA-35R DC-500MHz 400w lightning protect	36.95	
CX-210A 1.5kw DC-1000MHz coax switch	51.95	
CX-210N 1.5kw DC-1500MHz N coax switch	93.95	
DL-30A 15/100w peak 0-500MHz dummy load	33.95	
DL-30N 15/100w peak 0-500MHz N dummy Dw	49.95	39.95
HB-100 Desk mount bracket for HT	44.95	
HB-400 HT air vent dash mount	19.95	
HB-450 HT adjustable air vent dash mount	69.95	
HB-500 Remote head air vent dash mount	22.95	
HB-650 HT door mt; side window/glove box	69.95	
SM-505KTS Spkr/mic; Kenwood TR-2500 .Dm	29.95	19.95

Diamond Systems (DSY)

IBM LICENSE COURSE; THEORY/REGULATIONS/CODE

DSI-IBM-N Novice Class License software	$49.95	39.95
DSI-IBM-T Technician Class License software	44.95	34.95
DSI-IBM-NC No Code Tech Class License software	59.95	49.95
DSI-IBM-G General Class License software	44.95	34.95
DSI-IBM-A Advanced Class License software	59.95	49.95
DSI-IBM-E Extra Class License software	59.95	49.95

DIGIMAX (DIG)

D-500 512 MHz 8-digit counter - 1 PPM	$149.95	139.95
D-510A 1 GHz 8-digit counter - 1 PPM	179.95	159.95
D-612 1.2 GHz 9-digit counter - .1 PPM	259.95	229.95
D-1200 1.2 GHz 9-dig .1 PPM ctr/audio mult	299.95	269.95
AC-12 12vdc adaptor	8.95	
AM-12 10X/100X audio multiplier .....Δmwfv	39.95	9.95
AM-500X X10/X100 audio multiplier .....Δm	69.95	14.95
B-12 Dry cell holder, switch for D-612	10.95	
BAC-5 Nicad batt pack for D-500/D-510A	29.95	
BAC-12 Nicad batt pack; D-612/D-1200	34.95	
RF-500X Inline RF sampler, 250w maximum	39.95	
T-1200 21" BNC telescopic antenna	8.95	

DRAKE (DRA)

R-8A Shortwave receiver	1099.00	1079
1590 35-55, 108-174 MHz VHF converter	209.00	
1591 Interface computer soft; R-8 ..Dmwfv	59.00	
MS-8 1592 Speaker	49.00	
7850 R-8 technical manual .....Δwfv	39.95	
7851 R-8A technical manual	39.95	
SW-8 Shortwave receiver	699.00	
1595 Carrying case for SW-8	49.00	

EDCO (EDC)

TX-146 2m 50w 40db 3-stage helical filt ..Dm	$89.95	79.95

EIMAC TRANSMITTING TUBES (EIM)

3-500Z	$183.00
3CX800A7	412.00
3CX1200A7	665.00
4CX250B/7203	149.95

EIMAC - continued

	Reg	Sale
8873	458.00	
8874/3CX400A7	439.95	
8875	499.00	
8877/3CX1500A7	935.00	

ALSO see TUBES

FORBES GROUP (FOR)

VT-14 2m Ventenna 3' 2.6 db base ant	$ 49.95	44.95
VT-22 220 Ventenna 25" 2.6 db base ant	49.95	44.95
VT-27 2m/440 Ventenna base antenna	74.95	66.95
VT-44 440 Ventenna 14" 2.6 db base ant	49.95	44.95
VT-15S Scanner Ventenna 3' 2.6 db base	49.95	44.95

Gamber-Johnson (GAM)

SS-100 Super slide mount w/ant plug	$100.22	69.95
SS-101 Extra base for SS-100	44.42	

GAP Verticals (GAP)

DX-VIII Challenger 80/40/20/15/12/10/6/2m 31.5'	$259.00
(SYN) 100' 1/2" black double braided rope	6.95
DX-VI Eagle 40/20/17/15/12/10m 21.5' rigid	269.00
DX-IV Voyager 160/80/40/20m 45'; use 350' guy	399.00
(SYN) 350' 3/16" black double braided rope	39.95
Titan DX 80/40/30/20/17/15/12/10m, 25'	289.00

GENESYS (GEN)

ADP-1 Chrome NMO to SO-239 adapter	$ 17.95
B-27 2m/440 7" duck	19.95
B-35 2m/440 15" duck	27.95
CT-221KE Eartalk for Kenwood ....Dwfv	84.95
CT-221ME Eartalk w/split plugs ....Dwfv	84.95
ET-Mark II Eartalk; Alinco/Icom/Standard/Yaesu	84.95
ET-Mark II-K Eartalk for Kenwood	84.95
G-1 43" 3/6db 2m/440 base antenna	99.95
NMO Mount NMO mount w/16' mount	10.95
PO Mount SO-239 mount w/16' coax	17.95
QS-110 Speaker/mic for Alinco, Icom, Yaesu	29.95
QS-110K Speaker/mic for Kenwood	29.95
RS-402 5/20/200w 125-525MHz SWR/power	139.95
SY-25D VHF/UHF duplexer	34.95
T-05 Throat mic with split plugs	84.95
T-05K Throat mic for Kenwood	84.95
T-05M Throat mic for Motorola	92.95

GLEN MARTIN (GME)

RT-424 4.5' roof-top tower, 6 sq ft 85 mph	$149.95
RT-832 8' roof-top tower, 8 sq ft 85 mph	219.95
RT-936 9' roof-top tower, 18 sq ft 85 mph	369.95
RT-1832 17.5' roof-top tower, 12 sq ft 85 mph	499.95
LB-3755 Set of 8 3/4 x 5" lag bolts	8.95
RA-6024 24" side arm for roof tower	59.50
RA-6048 48" side arm for roof tower	76.50
M-1330A 30' alum twr 12 sq ft/Hazer/10' mast T	1539.56
M-1340A 40' alum twr 12 sq ft/Hazer/10' mast T	1744.56
M-1350A 50' alum twr 12 sq ft/Hazer/10' mast T	1971.06
M-1840A 40' alum twr 16 sq ft/Hazer/10' mast T	2047.64
M-1850A 50' alum twr 16 sq ft/Hazer/10' mast T	2292.64
M-1860A 60' alum twr 15 sq ft/Hazer/10' mast T	3195.00
M-1870A 70' alum twr 15 sq ft/Hazer/10' mast T	3485.00
LR-8400 Lightning rod kit (complete)	148.95
CW-2540 25' #4 bare copper ground wire	18.25
CW-5040 50' #4 bare copper ground wire	36.50
CW-7540 75' #4 bare copper ground wire	55.00
CW-1040 100' #4 bare copper ground wire	73.00
CW-1240 125' #4 bare copper ground wire	91.25
CW-1540 150' #4 bare copper ground wire	109.50
MC-10 Mast clamp; 2 required	24.95
ES-40 4" dia x 30" earth screw	13.95
ES-60 6" dia x 48" earth screw	23.95
ES-80 8" dia x 66" earth screw	54.00
GR-4400 Ground rod wire clamp	4.85
GR-5080 8' x 5/8" ground rod	19.00
H-2 175 lb load 12 sq ft HD aluminum Hazer	339.95
H-3 150 lb load 8 sq ft std aluminum Hazer	245.95
H-4 200 lb load 16 sq ft galv steel Hazer	326.95
HR-6010 T²X plates for H-2/4/5/6	19.95
M-1049 9' 1.92" OD galv steel mast	56.00
MA-1049 9' 1.92" OD aluminum mast	64.95
MA-1050 5' 1.92" OD aluminum mast	51.50
MA-2069 9' 2.376" OD aluminum mast	96.00

GLEN MARTIN - continued

	Reg	Sale
MA-5050 5' 1.33" OD aluminum mast	34.95	
ML-1800 Messenger line kit; Glen Martin towers	65.50	
ML-2500 Messenger line kit; Rohn towers	65.50	
TB-25 Thrust bearing (2 sealed bearings)	79.95	
TL-0470 Terminal lug	1.65	
VH8-50 Hazer - 50' Rohn 45	1230.00	
VH8-60 Hazer - 60' Rohn 45	1350.00	
VH8-70 Hazer - 70' Rohn 45	1455.00	
VH9-50 Hazer - 50' Rohn 55	1265.00	
VH9-60 Hazer - 60' Rohn 55	1385.00	
VH9-70 Hazer - 70' Rohn 55	1490.00	

All GLEN MARTIN items are shipped PREPAID (Glen Martin's expense) direct to you from the factory (48 states). We prefer payment in full with order, however, we will accept your credit card with the understanding that we will process the charge when we order the merchandise from the factory. This means that you may be billed before you receive your order. Please allow sufficient delivery time. Most truck lines will not unload towers, so please be sure to have enough manpower and/or equipment on hand.

GOLD LINE (GOL)

1043 Signal Hunter 10m DF ant ....Δm	$ 55.00	24.95

GROVE (GRV)

ANT-20 No-Tenna Inside car receiving ant	$ 19.95	
BOK-16 Listener's Lawbook	9.95	
BOK-104 Antenna Factbook	9.95	
SP-200A Sound Enhancer Deluxe spkr ....Dc	199.95	179.95

GRUNDIG (GRU)

Cosmopolit Port AM/FM/SW/LW Rcvr ....Dfv	$249.95	139.95
Yacht Boy 206 Port AM/FM/SW/LW Rcvr ...Dmw	139.95	59.95
Yacht Boy 220 Port AM/FM/SW/LW Rcvr ....Dv	129.95	49.95
Yacht Boy 230 Port AM/FM/SW/LW Rcvr .... Dm	199.95	79.95
Yacht Boy 235 Port AM/FM/SW/LW Rcvr ....Dfv	159.95	89.95
Satellit 700 AC/DC/batt AM/FM/SW/LW Rcvr	699.95	449.95
Traveller II Port AM/FM/SW/LW Rcvr/clock	109.95	89.95
Yacht Boy 305 Portable AM/FM/SW/LW Rcvr	149.95	129.95
Yacht Boy 400 Portable AM/FM/SW/LW Rcvr	249.95	199.95

HAL (HAL)

DSP-4100 HF DSP modem	1295.00	1099
P-38 HF DSP modem	395.00	349.95
PCI-4000/M Multi-mode clover unit; IBM ....m	795.00	699.95
ST-8000 HF modem ....special order	3495.00	3269

HEIL (HEI)

PRO-SET-4 Deluxe boom mic/headset/HC-4	$131.00	
PRO-SET-5 Deluxe boom mic/headset/HC-5	131.00	
PRO-MICRO-4 Boom mic/headset/HC-4	105.00	
PRO-MICRO-5 Boom mic/headset/HC-5	105.00	
PRO-5-4 Boom mic/single headset (HC-4)	120.00	
PRO-5-5 Boom mic/single headset (HC-5)	120.00	
AD-1-I Pro-Set adapter cord for Icom	14.99	
AD-1-K Pro-Set adapter cord for Kenwood	14.99	
AD-1-Y Pro-Set adapter cord for Yaesu	14.99	
BM-5-4 Boom mic/single headset (HC-4) Dmwfv	64.90	49.95
BM-5-5 Boom mic/single headset (HC-5) ..Dwf	64.90	49.95
BM-5-4-I Bm mic/sgl headset; Icom (HC4) Dmwfcv	69.90	54.95
BM-5-4-Y Bm mic/sgl headset; Yaesu (HC4) Dmfcv	69.90	54.95
BM-5-5-I Bm mic/single headset; Icom (HC-5) Dwfv	69.90	54.95
BM-5-5-Y Bm mic/sgl headset; Yaesu (HC-5) .....Dv	69.90	54.95
BM-10-5 Boom mic/headset (HC-5) .....Dc	71.90	59.95
BM-10-4-I Boom mic/headset; Icom (HC-4) ..Dfv	85.90	69.95
BM-10-4-Y Boom mic/headset; Yaesu (HC-4) Dcw	85.90	69.95
BM-10-5-I Boom mic/headset; Icom (HC-5) Dc	85.90	69.95
BM-10-5-K Boom mic/headset; Kenwood (HC-5) Dc	85.90	69.95
BM-10-5-Y Bm mic/headset; Yaesu (HC-5) ...Dmfc	85.90	69.95
FS-1 Foot switch	26.95	
HS-1 Hand switch	20.75	
HC-4 DX'ers 'dream machine' mic element	29.95	
HC-5 Mic element for Icom SM-5/SM-6	29.95	
HM-10-4 Microphone with HC-4 element	63.96	
HM-10-5 Microphone with HC-5 element	63.96	
HM-10-Dual Mic w/HC-4 & HC-5 elements	112.96	
CC-1-I HM-10 cable for Icom	25.99	
CC-1-K HM-10 cable for Kenwood	25.99	
CC-1-Y HM-10 cable for Yaesu	25.99	
MA-1 Clamp and arm for HM-10	49.99	
TB-1 Table base mic stand for HM-10	19.95	

HEIL - continued

	Reg	Sale
B-4-I Microphone boom; Icom (HC-4) .....Dwf	47.90	19.95
B-4-Y Microphone boom; Yaesu (HC-4) .....Dw	47.90	19.95
B-5-K Mic boom; Kenwood (HC-5) .....Df	47.90	19.95
B-5-Y Microphone boom; Yaesu (HC-5) .....Df	47.90	19.95
FL-2 Flexlite ....Dm	32.50	9.95
Boom Clip for BM-series	5.00	
Ear Pads for BM-series ....pair	5.00	
Ham Radio Handbook	12.95	

HUSTLER (HUS)

RM-80 80m CW 400w PEP resonator	$ 26.95	
RM-75 75m phone 400w PEP resonator	26.95	
RM-40 40m 400w PEP resonator	24.95	
RM-30 30m 400w PEP resonator	24.95	
RM-20 20m 400w PEP resonator	21.95	
RM-17 17m 400w PEP resonator	21.95	
RM-15 15m 400w PEP resonator	15.95	
RM-12 12m 400w PEP resonator	15.95	
RM-11 11m 400w PEP resonator	15.95	
RM-10 10m 400w PEP resonator	15.95	
RMX-B Black 10m resonator w/mast ...Dmwv	34.95	19.95
RMX-W White 10m resonator w/mast .....Dw	34.95	19.95
RM-80S 80m CW 2kw PEP resonator	49.95	
RM-75S 75m phone 2kw PEP resonator	49.95	
RM-40S 40m 2kw PEP resonator	35.95	
RM-20S 20m 2kw PEP resonator	28.95	
RM-15S 15m 2kw PEP resonator	24.95	
RM-11S 11m 2kw PEP resonator	23.95	
RM-10S 10m 2kw PEP resonator	23.95	
MO-1 54" mast for fender or deck mount	31.95	
MO-2 54" mast for bumper mount	31.95	
MO-3 54" no break-over mast	23.95	
MO-4 22" mast for special applications	19.95	
VP-1 Tri-band adapter	5.95	
RSS-2 Resonator spring	9.95	
QD-2 Stainless quick disconnect	19.95	
L-14-144 12' RG-58, PL-259 to lugs	9.95	
L-14-240 20' RG-58, PL-259 to lugs	12.95	
LU-216 18' RG-58, PL-259s both ends .....Dfv	13.95	7.95

STAINLESS 2" MOBILE BALL MOUNTS

SSM-1 Ball & spring, cadmium hardware	$ 46.95
SSM-2 Ball, cadmium hardware	26.95
SSM-3 Stainless steel spring	24.95

1-1/2" MOBILE BALL MOUNTS

C-32 Chrome plated ball	$ 11.95	
C-30 Chrome plated spring	11.95	
C-29 Stainless steel spring	17.95	
BM-1 Single strap bumper mt w/C-32	21.95	

3/8-24 THREAD MOBILE MOUNTS

GCM-1 Rain gutter mount ....Δw	$ 12.95	6.95
HLM Trunk lip mount w/swivel	22.95	
HOT Hustloff trunk lip mt w/swivel	23.95	
MBM Super magnet mount w/16' coax	19.95	
MM-3 Universal mount with 17' coax	21.95	
RVM Recreational vehicle mount	20.95	
TGM-1 Trunk grove mount	12.95	
TLM Trunk lip mount	21.95	

HF ANTENNAS

4-BTV 40/20/15/10m 21' trap vertical	$166.95	119.95
5-BTV 80/40/20/15/10m 25' trap vertical	211.95	149.95
30-MTK 30m trap kit for 4-BTV/5-BTV	41.95	39.95
6-BTV 80/40/30/20/15/10m 24' trap vert	246.95	169.95
G-2537 10m 4.2db vertical antenna ....Dc	134.00	69.95

VHF BASE STATION ANTENNAS

G6-144B 2m 6 db 10' vertical antenna	$149.95	114.95
G6-270R 2m/440 6db 7.6' base station ant	208.95	159.95
G7-144 2m 7 db 15' vertical antenna	208.95	159.95

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Application next to Order Blank

HUSTLER - continued

	Reg	Sale
G7-220 220 MHz 7 db 10' vertical antenna ...	199.95	149.95
G6-440 440 MHz 6 db 7' vertical antenna	186.95	139.95

SPIRIT VHF/UHF BASE ANTENNAS (Special Order)

HSU-14448 2m unity gain base antenna ...*T	$400.00	219.95
HS3-14448 2m 3db base antenna .....*T	495.00	319.95
HD6-14448 2m 6db base antenna .....*T	833.00	629.95
HS6-43050 430-450MHz 6 db base ant .....*T	697.00	379.95
HD9-43050 430-450MHz 9 db base ant ....*T	882.00	499.95
HS6-12430 1.2GHz 6 db base antenna .....*T	485.00	319.95
HS9-12430 1.2GHz 9 db base antenna .....*T	766.00	419.95
HS12-12430 1.2GHz 12 db base antenna ..*T	965.00	529.95

***Specify exact frequency and height above ground that the Spirit antenna will be mounted above surrounding terrain. These antennas are drop-shipped (shipped direct to you from the Hustler factory). On these factory drop-shipments we prefer payment in full with order, however, we will accept your credit card with the understanding that we will process the charge when we order the merchandise from the factory. This means that you may be billed before you receive your drop-shipped merchandise. Shipment is FOB Mineral Wells, Texas via truck, COD for freight charges only. Freight charges will be collected upon delivery by the carrier. Please allow sufficient time for delivery on these special order antennas.**

VHF MOBILE ANTENNAS

BBL-144A 2m FM ¾" hole mt antenna, 3.4db	$ 39.95	
BBLT-144A 2m FM trunk lip mt ant, 3.4 db ...	47.95	42.95
CG-144 2m FM ⅝-24 ant, 7' high, 5.2 db	31.95	
CGT-144 2m FM trunk mt ant, 7' high, 5.2db	51.95	49.95
CG-220 220 FM ⅝-24 antenna, 5.2 db	31.95	
CGT-220 220 MHz 5.2 db trunk mt antenna ..	51.95	44.95
FX-2 2m FM 3.4 db magnetic mt antenna	33.95	
FX-2B 2m FM 3.4 db black mag mt antenna .	38.95	
FX-220 220 FM 3.4 db magnetic mt ant	33.95	
FX-220B 220 FM 3.4 db black mag mt ant	38.95	
FXM FX-style magnet mount w/coax .....Dfv	19.95	14.95
MKR-2 Radial kit for SF-2/CG-144	20.95	
RX-2 2m FM 3.4db magnetic mount ant	24.95	
RX-220 220 FM 3.4db magnetic mt antenna .	24.95	
RX-440 440 FM 5 db magnetic mt antenna ...	24.95	
SF-2 2m FM ⅝-24 ant, 4' high, 3.4 db	14.95	
SF-220 220 MHz ⅝-24 antenna, 3 db	14.95	
THF 140-500 MHz ¼ wave trunk mount ant ...	23.95	
UGM 140-500 MHz ¼ wave BNC mag mt ant .	21.95	
UHT-1 140-500 MHz ¼ wave roof mt ant	14.95	

HY-GAIN (HYG)

TRI-BAND BEAMS (20-15-10m)

398S TH11DXS 11el 20/17/15/12/10m, 24' bm .	1079.95	899.95
391S TH7DXS 7 el, 24' boom w/balun	795.95	669.95
393S TH5Mk2S 5 el, 19' boom w/balun	682.95	579.95
395S Explorer 14 4 el, 14' boom w/balun	527.95	444.95
396S QK-710 10MHz or 40m EX add-on	165.95	154.95
388S TH3Mk4 3 el, 14' boom	424.95	359.95
221S-1 TH3JRS 3 el, 12' boom, 750w PEP	315.95	269.95
390S TH2Mk3S 2 el, 6' boom	337.95	289.95
DB-1217 12/17m 14' boom beam .....m	393.95	339.95
TP-1* Roof ant pack; TH3Mk4/HAM4/4.5' twr/cbl	1249.95	1049.95
[illegible]P-2* Roof ant pack; TH3JR/CD45/4.5' twr/cbl	799.95	779.95
[illegible] 3* Roof ant pack; 64DX/CD45/4.5' twr/cbl	786.95	669.95
[illegible] * Roof ant pack; 28FM/CD45/4.5' twr/cbl .	751.87	639.95

[illegible]rop-shipped from Hy-Gain, freight collect

[illegible]NOBAND BEAMS

[illegible]71S Discoverer 7-1 30m or 40m rotatable dipole	$263.95	229.95
[illegible]72S Discoverer 7-2 40m 2 el 23' boom	589.95	499.95
373S Discoverer 7-3 3rd el; 372S; 35' boom	371.95	314.95
377S-1 205CA 20m 5 el, 34' boom .....T	661.95	559.95
394S 204BAS 20m 4 el, 26' boom	481.95	399.95
226S 203BAS 20m 3 el, 16' boom	289.95	249.95
376S 155B/CAS 15m 5 el, 26' boom	372.95	319.95
236S 153BAS 15m 3 el, 12' boom	178.95	159.95
375S 105B/CAS 10m 5 el, 24' boom	246.95	219.95

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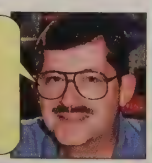

HY-GAIN - continued

	Reg	Sale
239S-1 103BAS 10m 3 el, 8' boom	128.95	119.95
1009AA LP-1009AA 13-30 MHz 12 el LP ...m	1295.95	1089
1010AA LP-1010AA 10-30 MHz 14 el LP ...m	1872.95	1569

MULTI-BAND VERTICALS

188S DX-88 80-10m 8-band 25' vert	$339.95	289.95
189S GRK-88 Ground radial kit	79.95	74.95
190S RRK-88 Roof radial kit	97.95	89.95
191S 160MK-88 160m kit for 188S	178.95	159.95
DX-77 40-10m 750w 7-band 29' no radials vert	412.95	349.95
182S 18HTS Hy-Tower 5-band, 50' high .....T	739.95	629.95
LC-160Q 160m loading coil for Hy-Tower	93.33	84.95
385S 14AVQ/WBS 40/20/15/10m, 18'	159.95	144.95
384S 12AVQS 20/15/10m, 13.5' high	111.95	99.95
184 14RMQ Roof kit-12/14AVQ/S, 18AVT/S ...	69.95	64.95
193S 18VS 80-10m trapless vert, 18' high ...	74.95	69.95

MULTI-BAND DOUBLETS

380S 2BDQS 80/40m 101' trap doublet	$117.95	109.95
383S 5BDQS 80/40/20/15/10m 94' trap	235.95	199.95
381S 19PD 80-10m 233' 1-band port dipole	263.95	224.95

VHF/UHF BASE STATION ANTENNAS

343S 66DX 6m 6 el beam, 24' boom	$226.95	199.95
230S-1 64DX 6m 4 el beam, 12' boom	119.95	109.95
232S 215DX 2m 15 el beam, 28' boom	206.95	184.95
214S-1 214FM 2m 14 el beam, 15' boom	81.95	
208S-1 28FM 2m 8 el beam, 12' boom	71.95	
205S-1 25FM 2m 5 el beam, 6' boom	51.95	
203S-1 23FM 2m 3 el beam, 3.5' boom	41.95	
231S 70-31DX 430 31 el beam, 24' boom	199.95	179.95
338 GPG2B 2m ground plane ant	42.95	
331S V-42R 2m/440 type N base ant	154.95	139.95
335S-1 V-2R 2m ground plane ant	99.95	92.95
337S-1 V-4R 440 ground plane ant	97.95	89.95

OSCAR LINK ANTENNAS

216S 216SAT 2m 16el 145.9MHz boom	$213.95	189.95
215S 7030SAT 435 MHz 30 el beam	206.95	184.95
217 60" x 1½" fiberglass crossboom	71.95	
218S OSCAR Link Complete Oscar ant sys	477.95	399.95

ACCESSORIES

155 CI Center insulator for doublets	$ 12.95	
156 EI 7" doublet end insulators .....pair	6.95	
157S CIC Dipole center insulator w/SO-239 .	23.95	
242S BN-86 80-10m balun	36.95	
243S BN-4000B 4kw PEP 160-10m beam balun ..	93.95	89.95
244S BN-4000D 4kw PEP 160-10m dipole balun ..	93.95	89.95
245S BN-4000N 4kw PEP 80-10m N beam balun	103.95	94.95
2400-155 62400155 Contester bm mic/headset	113.95	99.95

HY-GAIN CRANK-UP TOWERS

129 HG-37SS 37' self-supporting tower .....T	1526.95	1259
125-1 HG-52SS 52' self-supporting tower ..T	2565.95	2119
130-1 HG-54HD 54' hvy duty self-support ..T	3109.95	2569
131-1 HG-70HD 70' hvy duty self-support ..T	4485.95	3699
116 HG-5 5' 2" OD .120 wall steel mast	79.95	
117 HG-10 10' 2" OD .120 wall steel mast Tw	102.95	49.95
118 HG-15 15' 2" OD .120 wall steel mast ..T	165.95	154.95
121B HG-TBT Thrust bearing w/sleeve	86.95	79.95
122 HG-COA Coax arm*, tower legs 1"-1½" ..	23.95	
*One required per section		
140 HG-TOA Tilt-over 'gin-pole' .....T	727.95	619.95

Hy-Gain Crank-Up Towers are drop-shipped (shipped direct to you from the Hy-Gain factory). On these drop-shipments we prefer payment in full with order, however, we will accept your credit card with the understanding that we will process the charge when we order the merchandise. This means that you may be billed before you receive your drop-shipped merchandise. Shipment is FOB Lincoln, Nebraska via truck, COD for freight charges only. Freight charges will be collected upon delivery by the carrier. Please allow sufficient delivery time. Most truck lines will not unload the tower, so please be sure to have enough manpower and/or equipment on hand.

HY-GAIN ANTENNA ROTORS

305 AR-40 Solid state light duty rotor	$256.95	229.95
302 CD-45-II Medium duty rotor	361.95	329.95
304 HAM IV Heavy duty rotor	509.95	439.95
304D Pathfinder HAM IV digl HD rotor ..Dmwf	749.99	569.95
307 Pathfinder HAM V digital HD rotor	881.95	749.95
303 T²X Tailtwister extra heavy duty rotor	607.95	529.95

HY-GAIN - continued

	Reg	Sale
303D Pathfinder Tailtwister dig extra HD rotor	951.95	819.95
300 HDR-300/A Deluxe digital hvy duty rotor	1198.95	999.95
306 Digital rotor control for HAM IV/T²X	607.95	524.95

OPTIONAL ACCESSORIES FOR ROTORS

51467-10 MSHD Lwr mast support; HAM IV/T²X	$ 79.95	
51472-10 MSLD Lwr mast support; CD45II/AR40	27.95	
50559-10 TSP-1 Tower spacing kit ....Δmwfv	22.95	12.95

See BELDEN for rotor cable

ICOM (ICO)

IC-781 Xcv/Rcv/ps/auto tuner/spec scope	8000.00	6599.95
FL-103 2.8 KHz SSB filter	98.00	
UT-36 Voice synthesizer	59.00	
IC-775DSP Xcvr/ps/keyer/auto tuner/IF-DSP .	4760.00	3899.95
IC-775DSP/ICO Xcvr/ps/DSP installed .Dmwcv	4000.00	3299.95
CR-282 High stability crystal unit	134.00	124.95
FL-53A 250 Hz CW filter (2nd IF)	196.00	179.95
FL-101 250 Hz CW filter (1st IF)	106.00	99.95
FL-102 6 KHz AM filter	75.00	
FL-222 1.9 KHz 455 KHz IF SSB filter	199.00	179.95
FL-223 1.9 KHz 9 MHz IF SSB filter	84.00	
HM-36 Scanning hand mic	59.00	
MB-19 Rack mounting handles	59.00	
SM-6 Desk microphone	102.00	99.95
SM-8 2-connector desk mic/up/down scan .	160.00	144.95
SP-20 Speaker w/audio filter	248.00	219.95
SP-21 External speaker	110.00	99.95
UT-66 Voice synthesizer	66.00	
EX-202 LDA-2 auto bandswitch unit; 730 Dm	26.00	9.95
EX-205 TRV unit for Xvtr switching; 730 ..Dm	26.00	6.95
MB-18 Mobile mount for IC-751A .....Dm	43.00	9.95
IC-738 Xcvr/SW Rcvr/tuner/keyer/mic/VOX	1625.00	1369.95
IC-736 Xcvr w/6m/tuner/power supply	2172.00	1799.95
PS-55 Power supply	286.00	239.95
PS-15 20A power supply .....Dmwfv	200.00	179.95
AH-3 Automatic antenna tuner	653.00	549.95
AH-2B Bumper mt & whip	303.00	259.95
AT-150 100w 9-band automatic ant tuner .	638.00	529.95
CR-282 High stability crystal unit	134.00	124.95
FL-52A 500 Hz CW filter (2nd IF)	196.00	179.95
FL-53A 250 Hz CW filter (2nd IF)	196.00	179.95
FL-100 500 Hz CW filter (1st IF)	106.00	99.95
FL-101 250 Hz CW filter (1st IF)	106.00	99.95
HM-36 Extra scanning hand mic	59.00	
MB-49 Mobile mounting bracket	47.00	
SM-6 Desk microphone	102.00	99.95
SP-3 External speaker	112.00	99.95
SP-7 Small external speaker	75.00	
SP-20 Speaker w/audio filter	248.00	219.95
SP-21 External speaker	110.00	99.95
UT-30 Tone encoder	44.00	
IC-728 Xcvr/SW Rcvr w/mic	1453.00	1199.95
PS-55 Power supply	286.00	239.95
PS-15 20A power supply .....Dmwfv	200.00	179.95
AH-3 Automatic antenna tuner	653.00	549.95
AH-2B Bumper mt & whip	303.00	259.95
AT-160 Automatic antenna tuner .....Dm	486.00	249.95
CR-64 High stability oscillator crystal	125.00	114.95
FL-100 500 Hz CW filter	106.00	99.95
FL-101 250 Hz CW filter	106.00	99.95
MB-5 Mobile mount	47.00	
SM-6 Desk microphone	102.00	99.95
SP-3 External speaker	112.00	99.95
SP-7 Small external speaker	75.00	
SP-20 Speaker w/audio filter	248.00	219.95
UI-7 AM/FM module for IC-728	95.00	
UT-30 Tone encoder	44.00	
IC-707 Xcvr/SW Rcvr w/mic	899.00	759.95
PS-55 Power supply	286.00	239.95
PS-15 20A power supply .....Dmwfv	200.00	179.95
AH-3 Automatic antenna tuner	653.00	549.95
AH-2B Bumper mt & whip	303.00	259.95
CR-338 High stability crystal unit	65.00	
FL-52A 500 Hz CW filter (2nd IF)	196.00	179.95
FL-53A 250 Hz CW filter (2nd IF)	196.00	179.95
MB-5 Mobile mount	47.00	
SM-6 Desk microphone	102.00	99.95
SP-3 External speaker	112.00	99.95

ICOM - continued

	Reg	Sale
SP-7 Small external speaker	75.00	
SP-20 Speaker w/audio filter	248.00	219.95
SP-21 External speaker	110.00	99.95
UI-9 FM module	90.00	
UT-30 Tone encoder	44.00	
IC-706 Mini Xcvr/SW Rcvr w/6 & 2m	1560.00	1249.95
FREE 60 minute phone card - IC-706 thru 6/30/96		
PS-85 Power supply	325.00	279.95
AT-180 Automatic antenna tuner; HF+6m	599.00	499.95
OPC-598 23' extension cable for AT-180	58.00	
FL-100 500 Hz CW filter	106.00	99.95
FL-101 250 Hz CW filter	106.00	99.95
FL-103 2.8 KHz SSB filter	98.00	
FL-223 1.9 KHz 9 MHz IF SSB filter	84.00	
CR-502 High stability oscillator crystal	76.00	
Suggest dealer installation of CR-502 ($25.50)		
HM-77A TTP microphone	121.00	114.95
MB-62 Mounting bracket for main unit	20.00	
MB-63 Mounting bracket for control panel	14.00	
OPC-581 11.5' separation cable	48.00	
OPC-589 8-pin to jack adapter	28.00	
OPC-599 7+8-pin to 13-pin adapter	48.00	
UT-102 Voice synthesizer	59.00	
IC-2KL 160-15m/WARC solid state linear	2981.00	2459.95
IC-4KL 1kw output solid state linear	9900.00	7999.95
OPC-118 Adapter; 2KL/4KL; 725/735/765	20.00	
AH-2A Antenna tuning system only .....Δmwv	760.00	499.95
AH-2B Bumper mt & whip	303.00	259.95
OPC-137 Adapt; AH-2/2A - 751A/745 ..Dmwf	20.00	16.95
AT-150 100w 9-band automatic ant tuner	638.00	529.95
OPC-137 Adapt; AT-150 - 751A/745 ...Dmwf	20.00	16.95
AT-500 500w 9-band automatic ant tuner	1095.00	919.95
OPC-118 Adapter; AT-500; 725/735/765/781	20.00	

SHORTWAVE RECEIVERS

R-1* .1MHz-1.3GHz AM/FM handheld Rcvr	$635.00	529.95
R-1-15 .1MHz-1.3GHz AM/FM hand Rcvr/cell blkd	500.00	429.95
HP-4 Lightweight headphones	23.00	
Note: R-1/R-1-15 use 'W'-series HT accessories		
R-71A 100 KHz-30MHz dig keyboard Rcvr Dmwfv	1584.00	1199.95
CK-70 (EX-299) 12v DC option	33.00	
CR-64 High stability oscillator crystal	125.00	114.95
EX-257 FM unit	87.00	
EX-310 Voice synthesizer	85.00	
FL-32A 500 Hz CW filter	101.00	99.95
FL-44A SSB filter	227.00	199.95
FL-63A 250 Hz CW filter	97.00	
MB-12 Mobile mount	47.00	
RC-11 Infrared wireless remote control	116.00	109.95
SP-3 External speaker	112.00	99.95
R-72A 100 KHz - 30 MHz shortwave receiver	1200.00	999.95
CP-11 Cig cord w/noise filter	32.00	
CR-64 High stability oscillator crystal	125.00	114.95
FL-100 500 Hz CW filter	106.00	99.95
FL-101 250 Hz CW filter	106.00	99.95
MB-5 Mobile mount	47.00	
SP-3 External speaker	112.00	99.95
SP-7 Small external speaker	75.00	
SP-20 Speaker w/audio filter	248.00	219.95
UI-8 FM unit	95.00	
UR-1 Receiver protector unit	33.00	
UT-36 Voice synthesizer	59.00	
R-100* .1MHz-1.856GHz AM/FM 12v Rcvr	935.00	789.95
R-100-11 .1MHz-1.856GHz am/fm 12v Rcv/cell blkd	801.00	669.95
AD-15A Power supply .....Dmv	63.00	24.95
AH-7000 25-1000 MHz discone ant w/coax	165.00	149.95
CP-11 Cig cord w/noise filter	32.00	
HP-4 Lightweight headphones	23.00	
R-7000* 25 MHz - 2 GHz scanning receiver	2000.00	1679.95
AH-7000 25-1000 MHz discone ant w/coax	165.00	149.95
CK-70 (EX-299) 12v DC option	33.00	
EX-310 Voice synthesizer	85.00	
MB-12 Mobile mount	47.00	
RC-12 Infrared wireless remote control	110.00	104.95
SP-3 External speaker	112.00	99.95
TV-R7000 ATV unit for R-7000	297.00	249.95
R-7100* 25 MHz - 2 GHz scanning Rcvr	2035.00	1699.95
R-7100-12 25MHz-2GHz Rcvr/cell blkd Dmwfv	1768.00	1299.95
AH-7000 25-1000 MHz discone ant w/coax	165.00	149.95

ICOM - continued

	Reg	Sale
MB-5 Mobile mount	47.00	
MB-23 Carrying handle	12.00	
SP-3 External speaker	112.00	99.95
SP-7 Small external speaker	75.00	
SP-20 Speaker w/audio filter	248.00	219.95
TV-R7100 TV/FM adapter	341.00	289.95
UT-36 Voice synthesizer	59.00	
R-9000* .1-1999.8MHz Rcvr/spectrum scope	7508.00	6299.95

*United States & state government agencies or a political subdivision thereof and communications utility companies and their legal agents **ONLY** may purchase unblocked models of R-1, R-100, R-7000, R-7100 and/or R-9000 for official government or communications utility company use only. Mail or FAX purchase order to AES.

SP-20 Speaker w/audio filter	248.00	219.95
UT-36 Voice synthesizer	59.00	
AH-610 Dual band 6/10m base ant .....Δw	$151.00	119.95

2m TRANSCEIVERS

IC-2000H 50w 2m FM Xcvr w/TTP mic	$329.00	279.95
OPC-347 23' DC power cable	37.00	
OPC-589 8-pin to jack adapter	28.00	
UT-85 Tone squelch unit	61.00	
UT-101 DTMF unit	22.00	
IC-281H 50w 2m FM Xcvr/TTP/9600 baud	488.00	399.95
MB-17A Quick release bracket	39.00	
OPC-347 23' DC power cable	37.00	
OPC-440 Mic extension cable	68.00	
OPC-589 8-pin to jack adapter	28.00	
UT-66 Voice synthesizer	66.00	
UT-85 Tone squelch unit	61.00	
IC-275H 100w 2m FM/SSB/CW Xcvr	2100.00	1699.95
PS-55 Power supply	286.00	239.95
AG-25 Mast mounted GaSFET preamp	176.00	159.95
CR-64 High stability oscillator crystal	125.00	114.95
FL-83 CW filter	120.00	109.95
UT-34 Tone squelch unit	75.00	
UT-36 Voice synthesizer	59.00	
UT-55 DTMF tone enc/dec; 2330A/2340 Δmwf	55.00	
UT-67 Tone squelch unit; IC-2330A ....Δmwfv	99.00	69.95
IC-2350H 50w 2m/35w 440 FM Xcvr/TTP mic	616.00	509.95
MB-17A Quick release bracket	39.00	
OPC-347 23' DC power cable	37.00	
OPC-440 Mic extension cable	68.00	
OPC-589 8-pin to jack adapter	28.00	
UT-101 Pager/code squelch	22.00	
UT-89 Tone scan/decode unit	88.00	
IC-2700H LTD 50w 2m/35w 440FM/HM90A mic	733.00	619.95
HM-90A wireless mic w/IC-2700H LTD! Limited Time!		
IC-2700H 50w 2m/35w 440 FM Xcvr/reg mic	653.00	549.95
BC-96 Microphone holder	34.00	
EX-1513 Infrared sub receiver	22.00	
HM-90A Wireless microphone	167.00	149.95
MB-17A Quick release bracket	39.00	
MB-58 Remote controller bracket	31.00	
OPC-347 23' DC power cable	37.00	
OPC-438 11.5' separation kit	33.00	
OPC-439 23' separation kit	48.00	
OPC-440 Mic extension cable	68.00	
OPC-441 Speaker extension cable	26.00	
OPC-589 8-pin to jack adapter	28.00	
UT-66 Voice synthesizer	66.00	
UT-84 Tone squelch unit	88.00	
IC-2710H 50w 2m/35w 440 FM Xcvr/TTP mic	856.00	719.95
BC-96 Microphone holder	34.00	
OPC-288 DC power cable for BC-96	15.00	
CP-13 Cig cable w/filter	32.00	
EX-1513 Infrared sub receiver	22.00	
HM-90A Wireless microphone	167.00	149.95
MB-58 Remote controller bracket	31.00	
OPC-347 23' DC power cable	37.00	
OPC-440 Mic extension cable	68.00	
OPC-441 Speaker extension cable	26.00	
OPC-589 8-pin to jack adapter	28.00	
UT-49 DTMF decoder unit	59.00	
IC-820H 2m/430 SSB/FM sat Xcvr/9600/no mic	1734.00	1459.95
PS-55 Power supply	286.00	239.95
PS-15 20A power supply .....Dmwfv	200.00	179.95
AG-25 2m mast mounted GaSFET preamp	176.00	159.95

ICOM - continued

	Reg	Sale
AG-35 430 MHz mast mounted preamp	182.00	164.95
CR-293 High stability xtal unit	304.00	274.95
FL-132 CW filter	106.00	99.95
HM-12 Scan hand microphone	59.00	
MB-5 Mobile mount	47.00	
SM-6 Desk microphone	102.00	99.95
SP-3 External speaker	112.00	99.95
SP-7 Small external speaker	75.00	
SP-20 Speaker w/audio filter	248.00	219.95
SP-21 External speaker	110.00	99.95
UT-36 Voice synthesizer	59.00	
UT-50 Tone decoder	59.00	
IC-Delta-100H 2m/440/1.2 GHz FM Xcvr/TTP	1239.00	1039.95
MB-50 Remote controller bracket	23.00	
OPC-332 11.5' separation kit	24.00	
OPC-333 23' separation kit	30.00	
OPC-335 16.4' speaker cable	32.00	
OPC-347 23' DC power cable	37.00	
UT-66 Voice synthesizer	66.00	
UT-75 DTMF decoder unit	55.00	
UT-76 Tone squelch unit	132.00	119.95
AH-32 2m/440 dual band mobile antenna	66.00	
Larsen **PO-K** Roof mt, coax for AH-32	24.00	
Larsen **PO-MM** Magnet mt, coax; AH-32	31.70	
Larsen **PO-TLM** Trunk lip mt, coax; AH-32	27.30	
Icom **AHB-32** Tnk lip mt, coax; AH-32 .Δmwf	61.00	19.95

Accessory for IC-u2AT

BC-50 Desk quick cgr; not for BP-20 .....Dm	$120.00	39.95

Accessories for IC-2AT

AD-12 External pwr adapter; 2/4GAT/32AT	$ 34.00	
BA-10 Bottom slide cap	11.00	
BC-16U/BM-112U Wall cgr; BP-5A/7/8 only	32.00	
BC-25U Extra wall charger; BP-3 only	28.00	
BC-35 Drop-in rapid charger; all batteries	120.00	109.95
BP-2 425ma 7.2v long life batt; all HTs	68.00	
BP-3 250ma 8.4v battery; all HTs	52.00	
BP-4 Alkaline battery case; all HTs	28.00	
BP-5 425ma 10.8v high power batt; all HTs	87.00	
BP-5A 425 ma 10.8v direct charge batt; all	87.00	
BP-7 425ma 13.5v 5w batt; deluxe HTs only	97.00	
BP-8 800ma 8.4v long life batt; all HTs	96.00	
BP-70 Extra 270ma 13.2v batt; 2GAT/32AT	90.00	
CP-1 Cig cgr; BP-3/7/8//DC cord; dlx HTs	21.00	
CP-10 Battery separation cable w/clip	41.00	
CP-11 Cig cord w/noise filter; dlx HTs	32.00	
DC-1 DC operation module; std HTs	32.00	
FA-2 Extra 2m flexible antenna	23.00	
FA-140B Extra 2m flex ant for IC-2GAT	23.00	
FA-1443B Extra 2m/440 dual band flex ant	23.00	
HH-SS Handheld shoulder strap	23.00	
HM-9 Speaker/mic; all HTs	58.00	
HM-46 Slim-line speaker/mic	47.00	
HS-10 Boom mic/headset	55.00	
HS-10SA VOX unit (deluxe HTs only)	55.00	
HS-10SB PTT switchbox	55.00	
HS-51 Headset w/VOX	77.00	
LC-38 Vinyl case; 2GAT w/BP-2/3/4 .....Dm	17.00	1.95
LC-42 Vinyl case; 32AT w/BP-5/70 .....Dm	20.00	2.95
MB-16 Window/car door mount	32.00	
MB-16D Mobile mtg bkt for all HTs	32.00	
MB-24 Window/car door mt; 2GAT .....Δwf	32.00	14.95
UT-40 Tone squelch decoder; 2GAT/32AT	66.00	

Accessories for P-series hand-helds

BC-80 Desk cgr; BP-112-114, BP-81-85 .....Df	$165.00	84.95
BC-74/BC-110A Extra wall cgr; BP-111-114	32.00	
BP-110 Alkaline battery case .....Dm	28.00	19.95
BP-111 Extra 7.2v 400ma 1.5w battery	68.00	
BP-112 7.2v 700ma 1.5w battery .....Dmwfcv	75.00	39.95
BP-113 7.2v 1200ma 1.5w battery	101.00	99.95
BP-114 12v 400ma 5w battery .....Dmwfcv	123.00	69.95
CP-12 Cig lighter cable w/filter	29.00	

AES® GIFT CERTIFICATES...

Information next to Order Blank

ICOM - continued

	Reg	Sale
HM-9 Speaker/microphone	47.00	
HM-46 Slim-line microphone	47.00	
HM-54 Heavy duty speaker/mic	66.00	
HS-51 Headset w/VOX	77.00	
LC-91 Vinyl case; BP-111 .....Dmf	25.00	9.95
LC-92 Vinyl case; BP-110/112 .....Dm	17.00	6.95
MB-30 Mobile/wall bracket	32.00	
OPC-254 Mini DC power cable	11.00	
UT-49 DTMF decoder unit	59.00	

Accessories for IC-2iA

	Reg	Sale
AD-26 Batt pack adapter for rapid charger ...	$ 14.00	
BP-120 AA alkaline battery case	28.00	
BP-122 7.2v 700ma battery .....Dmwv	75.00	39.95
BP-123 7.2v 1200ma battery .....Dmfv	101.00	59.95
BP-124 12v 400ma battery .....Dmf	128.00	69.95
HM-9L Speaker/mic	47.00	
LC-83 Vinyl case for BP-121 .....Df	28.00	16.95
LC-84 Vinyl case for BP-120/122 .....Dm	28.00	14.95
LC-85 Vinyl case for BP-123/124 .....Df	28.00	14.95
IC-W31A 2m/440 HT/batt/cgr/TTP/tone sq	545.00	459.95
IC-W31A/HP 5w 2m/440 HT/batt/cgr/TTP/tone	568.00	479.95
IC-Z1A 2m/440HT/BP180/cgr/TT/detach mic/tone sq	525.00	449.95
$100 rebate from Icom - IC-Z1A thru 6/30/96		
AD-51 Batt pack adapter for rapid charger	11.00	
BC-119-11 Desk charger (adapter required)	82.00	
BC-74/BC-110A Extra wall cgr; BP-111-114	32.00	
BC-79A Desk cgr (adapter required) Dmwfv	105.00	99.95
BP-170 Battery case	28.00	
BP-171 4.8v 700ma battery .....†	66.00	49.95
BP-172 4.8v 950ma battery	73.00	
BP-173 9.6v 600ma battery	120.00	109.95
BP-180 7.2v 600ma battery	66.00	
CP-12 Cig lighter cable w/filter	29.00	
CP-12L Right angle cig cable w/filter	29.00	
HM-46 Slim-line speaker/mic	47.00	
HM-46L Slim-line spkr/mic, rt angle plug ..	47.00	
HM-54 Hvy duty spkr/mic	66.00	
HM-75A Remote control microphone	77.00	
HS-85 Headset	84.00	
LC-123 Vinyl case; Z1A w/BP-170/171/172	30.00	
LC-124 Vinyl case; IC-Z1A w/BP-173	30.00	
LC-128 Vinyl case; IC-W31A	30.00	
MB-30 Mobile/wall bracket	32.00	
OPC-254L Right angle mini DC pwr cable ..	11.00	
SP-13 Earphone	3.00	
UT-93 Tone squelch unit; early IC-Z1A	66.00	
UT-94 Tone squelch unit; early IC-W31A	44.00	
IC-T22A 2m FM HT/batt/cgr/TTP	296.00	249.95
IC-T22A/HP 5w 2m FM HT/batt/cgr/TTP	334.00	279.95
IC-T7A 2m/440 FM HT/batt/cgr/TTP	395.00	339.95
AD-56 Batt pack adapter for rapid charger	14.00	
BC-119-11 Desk charger (adapter required)	82.00	
BC-74/BC-110A Extra wall cgr; BP-111-114	32.00	
BP-170 Battery case	28.00	
BP-171 4.8v 700ma battery	66.00	
BP-172 4.8v 950ma battery	73.00	
BP-173 9.6v 600ma battery	120.00	109.95
BP-180 7.2v 600ma battery	66.00	
CP-12 Cig lighter cable w/filter	29.00	
CP-12L Right angle cig cable w/filter	29.00	
CS-T7 DOS software for IC-T7A	28.00	
CSW-T7 Windows software for IC-T7A	56.00	
HM-46 Slim-line speaker/mic	47.00	
HM-46L Slim-line spkr/mic, rt angle plug ..	47.00	
HM-54 Hvy duty spkr/mic	66.00	
HM-75A Remote control microphone	77.00	
HS-85 Headset	84.00	
LC-125 Vinyl case; T22A w/BP170/171/172	30.00	
LC-126 Vinyl case; T22A w/BP173	30.00	
LC-136 Vinyl case; T7A w/BP170/171/172 .	30.00	

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ICOM - continued

	Reg	Sale
LC-137 Vinyl case; T7A w/BP173/180	30.00	
MB-30 Mobile/wall bracket	32.00	
OPC-254 Mini DC power cable	11.00	
OPC-254L Right angle mini DC pwr cable ..	11.00	
OPC-478 PC to radio cloning cable; IC-T7A	46.00	
SP-13 Earphone	3.00	
UT-94 Tone squelch unit; T22A	44.00	
IC-V21AT 2m/220 FM HT/batt/cgr/TTP	550.00	469.95
AD-25 Battery charger adapter	50.00	
AD-28 Batt pack adapter for rapid charger	14.00	
BC-119-11 Desk charger (adapter required)	82.00	
BC-77/BC-105A Extra wall charger	32.00	
BP-130 Battery case	28.00	
BP-131 900ma 7.2v battery/mic	106.00	99.95
BP-132 600ma 12v battery/mic	120.00	109.95
BP-157 900ma 7.2v battery	68.00	
CP-13 Cig cable w/filter	32.00	
CP-13L Right angle cig cable w/filter	32.00	
HM-9 Speaker/microphone	47.00	
HM-46 Slim-line speaker/mic	47.00	
HM-46L Slim-line spkr/mic, rt angle plug ..	47.00	
HM-54 Hvy duty spkr/mic	66.00	
HM-55A Speaker/mic w/TTP	127.00	109.95
HM-75 Speaker/mic w/remote control	77.00	
HS-51 Headset w/VOX	77.00	
LC-103 Vinyl case; W21A/BP130/131 .....Dv	30.00	19.95
LC-104 Vinyl case; W21A w/BP-132 ....Dmw	30.00	19.95
LC-105 Vinyl case; IC-W21AT w/BP-130/131	30.00	
LC-106 Vinyl case; IC-W21AT w/BP-132	30.00	
MB-30 Mobile/wall bracket	32.00	
OPC-288 Mini DC power cable	15.00	
OPC-288L Right angle mini DC pwr cable ..	15.00	

Accessories for IC-2SAT/2SRA/24AT/W2A

	Reg	Sale
AD-14 BC-74 charge adapter	$ 34.00	
AH-20 Replacement rcv ant for IC-2SRA	22.00	
BA-11 Bottom cap	9.00	
BA-12 Drop-in charger adapter	23.00	
BC-72 Rapid desk charger	149.00	134.95
BC-74/BC-110A Extra wall cgr; 24AT/S-series ...	32.00	
BC-77/BC-105A Extra wall cgr; W2A/2SRA	32.00	
BP-81 7.2v 110ma battery .....Δmwfv	61.00	44.95
BP-82 7.2v 300ma battery	66.00	
BP-83 7.2v 600ma battery	72.00	
BP-84 7.2v 1000ma battery	96.00	
BP-85 12v 340ma 5w battery	124.00	112.95
BP-90 AA battery case	28.00	
CP-12 Cig lighter cable w/filter	29.00	
CP-13 Cig cable w/filter; W2A/2SRA	32.00	
HM-9 Speaker/microphone	47.00	
HM-46 Slim-line speaker/mic	47.00	
HM-54 Hvy duty spkr/mic; not for 2G/W2A	66.00	
HM-65 Slim-line spkr/mic; W2A/2SRA	61.00	
HM-70 Speaker/mic; W2A/2SRA .....Dmf	66.00	39.95
HS-51 Headset w/VOX	77.00	
HS-60 VOX headset; W2A/2SRA .....Dm	88.00	39.95
LC-24(L) Leather case; 24AT/BP-85 .....Dm	21.00	9.95
LC-63 Vinyl case; 24AT/BP-81/BA-11 .....Dm	17.00	4.95
LC-71 Case; W2A/2SRA w/BP81/BA11 .Dmwv	28.00	6.95
MB-22 Alligator belt/pocket clip	12.00	
MB-25 Stainless steel wall storage unit	33.00	
MB-30 Mobile/wall bracket	32.00	
OPC-254 Mini DC power cable	11.00	
OPC-288 Mini DC pwr cord; W2A/2SRA	15.00	
UT-49 DTMF decoder unit for S-series	59.00	
UT-50 Tone decoder	59.00	
UT-51 Programmable tone encoder unit	66.00	
IC-2GXAT/HP 7w 2m FM HT/batt/cgr/TTP	339.00	289.95
BP-130A batt case FREE w/IC-2GXAT/HP! Limited Time!		
AD-25 Battery charger adapter	50.00	
AD-28 Batt pack adapter for rapid charger	14.00	
BC-119-11 Desk charger (adapter required)	82.00	
BC-77/BC-105A Extra wall charger	32.00	
BP-130A Battery case	28.00	
BP-132A 600ma 12v battery/mic	120.00	109.95
BP-157A 900ma 7.2v battery	68.00	
BP-160 700ma 7.2v battery .....†	53.00	29.95
BP-174 600ma 12v battery	78.00	
CP-13 Cig cable w/filter	32.00	

ICOM - continued

	Reg	Sale
CP-13L Right angle cig cable w/filter	32.00	
HM-46 Slim-line speaker/mic	47.00	
HM-46L Slim-line spkr/mic, rt angle plug ..	47.00	
HM-54 Heavy duty spkr/mic	66.00	
HM-55A Speaker/mic w/TTP	127.00	109.95
HS-51 Headset w/VOX	77.00	
LC-116 Carrying case; BP-130A/157A/160 .	30.00	
LC-117 Carrying case for BP-132A	30.00	
MB-30 Mobile/wall bracket	32.00	
OPC-288 Mini DC power cable	15.00	
OPC-288L Right angle mini DC pwr cable ..	15.00	
SP-13 Earphone	3.00	
UT-49 DTMF decoder unit	59.00	
IC-Delta-1A 2m/440/1.2 FM HT/batt/cgr/TTP	720.00	599.95
AD-22 External battery charge adapter	50.00	
AD-27 Batt pack adapter for rapid charger	14.00	
BC-119-11 Desk charger (adapter required)	82.00	
BP-100 Battery holder	28.00	
BP-101 700ma 7.2v battery	75.00	
BP-102 1200ma 7.2v battery	103.00	99.95
BP-103 600ma 12v battery	121.00	109.95
CP-13 Cig cable w/filter	32.00	
CP-13L Right angle cig cable w/filter	32.00	
HM-46 Slim-line speaker/mic	47.00	
HM-46L Slim-line spkr/mic, rt angle plug ..	47.00	
LC-81 Vinyl case for BP-100/101/102	28.00	
LC-82 Vinyl case for BP-103	28.00	
OPC-288 Mini DC ppower cable	15.00	
OPC-288L Right angle mini DC pwr cable ..	15.00	
UT-70 Tone encoder/decoder	160.00	144.95
IC-T21A 2m FM HT/batt/cgr/TTP	279.00	229.95
ARTSCI mod book FREE with IC-T21A! Limited time!		
BP-152 battery FREE w/IC-T21A! Limited Time!		
AD-44 Batt pack adapter for rapid charger	14.00	
BC-119-11 Desk charger (adapter required)	82.00	
BC-74/BC-110A Extra wall charger	32.00	
BP-151 800ma 6v battery	46.00	
BP-152 1100ma 6v battery	53.00	
BP-153 600ma 12v battery	120.00	109.95
BP-159 Battery case	28.00	
CP-12 Cig lighter cable w/filter	29.00	
CP-12L Right angle cig cable w/filter	29.00	
HM-46 Slim-line speaker/mic	47.00	
HM-46L Slim-line spkr/mic, rt angle plug ..	47.00	
HM-54 Heavy duty spkr/mic	66.00	
HM-55A Speaker/mic w/TTP	127.00	109.95
HM-75A Remote control microphone	77.00	
HS-51 Headset w/VOX	77.00	
LC-109 Vinyl case for BP-151/159	30.00	
LC-110 Vinyl case for BP-153	30.00	
LC-111 Vinyl case for BP-152	30.00	
MB-30 Mobile/wall bracket	32.00	
OPC-254 Mini DC power cable	11.00	
OPC-254L Right angle mini DC pwr cable ..	11.00	
SP-13 Earphone	3.00	
RP-1520 25w 2m FM repeater	3025.00	2499.95
Repeaters require service dept. set-up; $68 minimum		

220 MHz TRANSCEIVERS

	Reg	Sale
IC-03AT 2.5w 220 HT/batt/cgr/TTP	$400.00	339.95
IC-03AT uses same accessories as IC-02AT/HP		
IC-38A 25w 220 FM Xcvr w/TTP mic	496.00	419.95
HM-56A Extra autodial TTP mic	138.00	124.95
RP-2210 25w 220 MHz FM repeater	2700.00	2229.95
Repeaters require service dept. set-up; $68 minimum		

430/440 MHz TRANSCEIVERS

	Reg	Sale
IC-481H 50w 440 FM Xcvr/TTP/9600 baud	$665.00	559.95
IC-4GXAT 440 FM HT/batt/cgr/TTP	339.00	289.95
IC-T41A 440 FM HT/batt/cgr/TTP .....Dmwfv	360.00	298.95
IC-T42A 440 FM HT/batt/cgr/TTP	359.00	299.95
IC-X21AT 440/1.2 FM HT/batt/cgr/TTP Dmwfv	900.00	499.95
IC-4GXAT uses same accessories as IC-2GXAT		
IC-T41A uses same accessories as IC-T21A		
IC-T42A uses same accessories as IC-T22A		
IC-X21AT uses same accessories as IC-W21AT		
IC-475H 75w 430-450 FM/SSB/CW Xcvr	2300.00	1899.95
PS-55 Power supply	286.00	239.95
AG-35 Mast mounted preamp	182.00	164.95

ICOM - continued

	Reg	Sale
CR-64 High stability oscillator crystal	125.00	114.95
FL-32A CW filter	101.00	99.95
UT-34 Tone squelch unit	75.00	
UT-36 Voice synthesizer	59.00	
RP-4020 25w 440 MHz FM repeater .....Dmwv	2637.00	1599
RP-4020/50w 50w 440 MHz FM repeater	3200.00	2649.95
Repeaters require service dept. set-up; $68 minimum		

1.2 GHz EQUIPMENT

RP-1220 10w 1.2 GHz FM repeater	3450.00	2849.95
Repeaters require service dept. set-up; $68 minimum		

ACCESSORIES FOR IC-901

MB-21 Bracket for controller unit .....Δmv	$ 21.00	16.95
MB-31 Mounting bkt for band units .....Δmw	15.00	12.95
UT-48 DTMF encoder/decoder unit .....Df	59.00	29.95
UX-S92A 2m SSB/CW module .....Dm	679.00	179.95
AG-1200 1.2 GHz mast mounted preamp	151.00	139.95
TV-970 1.2 GHz ATV unit for 970 .....Δfv	561.00	299.95
UX-R96 Extended rcv unit; 970 **Special Order**	550.00	469.95
UX-97A 1.2 GHz module; 970 ..**Special Order**	1255.00	1049
UX-98 2.4 GHz module; 970 ....**Special Order**	2321.00	1899

ACCESSORIES

CT-16 Satellite interface unit	$128.00	116.95
CT-17 CI-V level converter	135.00	124.95
UX-14 CI-IV/CI-V converter for CT-17	99.00	
EX-309 Interface plug; 751/271/R71A .....Δmw	97.00	24.95
EX-310 Voice synthesizer	85.00	
EX-627 HF auto ant selector; 7 ants ....Δmwf	410.00	279.95
HM-7 Amplified mobile mic, 8-pin	59.00	
HM-8 TTP microphone, 8-pin .....Δmw	105.00	79.95
HM-12 Scan hand microphone	59.00	
HM-14 Scan/TTP mic; 25A/H/28A/45A	90.00	
HS-15 Goose neck mobile microphone ..Dmwf	54.00	14.95
MB-23 Side mount carrying handle	12.00	
OPC-047 24-pin optional acc cord .....Δmwv	19.00	6.95
OPC-052 2-pin cord for PS-30 .....Δv	12.00	4.95
OPC-053 4-pin cord for PS-30 .....Δmv	12.00	4.95
OPC-137 24-pin adaptr cbl; all base ...Dmwf	20.00	16.95
PS-45 Compact 8A power supply .....Dm	133.33	119.95
PS-85 Power supply	325.00	279.95
SM-6 Electret desk microphone	102.00	99.95
SM-8 2-connector desk mic w/up/down scan	160.00	144.95
SM-20 Stand mic for base stations	207.00	189.95
SP-3 External speaker	112.00	99.95
SP-5 Mobile speaker	43.00	
SP-7 Small external speaker	75.00	
SP-10 Slim-line external speaker	55.00	
SP-12 Slim-line speaker w/visor clip	35.00	
SP-20 Speaker w/audio filter	248.00	219.95
GP-22 GPS unit w/OPK-4 antenna kit .....†	500.00	299.95

INNOVA (INN)

06-9509 AC/DC adapter for 06-1101 .....Δmf	$ 13.62	6.95

INTERFLEX (INT)

dspGOLD Software for AEA DSP-2232 .....f	$129.95	
KaGOLD DualPort Software for KPC/KAM ....f	79.95	
KaGOLD DualPort **w/Pac**tor Soft; KPC/KAM .....f	99.95	
PkGOLD w/Pactor Software for PK-232MBX .f	99.95	
PkGOLD/900 Software for PK-900 .....f	129.95	

JPS (JPS)

ANC-4 Antenna noise canceller	$175.00	169.95
NF-60 Auto DSP audio spectral notch filter ...	160.00	149.95
NIR-10 Dlx noise/notch DSP bandpass filter .	299.95	279.95
NIR-12 Dual DSP noise reduction/filter unit ..	349.95	329.95
SDK-12 Software development kit; NIR-12 .	35.00	
NRF-7 Noise reducer and filter unit	219.95	199.95
NTR-1 Wide band noise and tone remover	169.95	159.95
SSTV-1 DSP slow scanTV filter .....m	160.00	149.95
Power Pack 115vac/12vdc adapter	16.00	

JSC (JSC)

ROTOR CABLE

JRR-420 4-wire; U-105/U-110 .....Δw, per ft.	14¢
JRR-420 .....Δw, **100** ft. Roll	12.95
JRR-420 .....Δw, **500** ft. Roll	44.95
JRR-520 5-wire; AR-40 .....Δmw, per ft.	17¢
JRR-520 .....Δmw, **100** ft. Roll	14.95

JSC - continued

	Reg	Sale
JRR-520 .....Δmw, **500** ft. Roll		49.95
JRR-520 .....Δmw, **1000** ft. Roll		89.95

COAX ASSEMBLIES w/PL-259s

JFB-58-12LP 12' RG-58U, PL-259 - lugs .....Dwf	$ 6.99	99¢
JFB-58-20LP 20' RG-58U, PL-259 to lugs ...Dm	8.49	2.95

K-COM (KCO)

RF-1 Modular telephone RFI filter	$ 16.95
RF-1/2-line Two-line modular RFI filter	22.95
RF-1/coiled Coiled cord modular RFI filter	22.95
RF-2 Hard-wired telephone RFI filter	10.95

KLM (KLM)

ANTENNAS

160V 160, 80 or 40m vertical, 24' high .....*	$300.00	259.95
80M-1 80m rotatable dipole, 90' long .....*T	980.00	849.95
80M-1R 80m rotatable dipole w/relays .....*T	1387.00	1199
80M-2 80m 2 el beam, 36' boom, 4 db .....*T	3251.00	2799
80M-2R 80m 2 el beam w/relays .....*T	4154.00	3579
80M-3 80m 3 el beam, 60' boom, 7 db .....*T	5416.00	4669
80M-3R 80m 3 el beam w/relays .....*T	7043.00	6069
SSV-80-40-15 80/40/15m vert, 65' high ...*T	966.00	839.95
6-12-8LPA 6-12 MHz 8el LP, 36' boom .....*T	2465.00	2129
Heavy duty boom only for **6-12-8LPA** .....*T	540.00	469.95
6-12-8LPA w/Heavy duty boom .....*T	2865.00	2469
6-30-15LPA 6-30 MHz 15el LP, 46' boom ...*T	4078.00	3519
7.2/10-30-LPA 7,10-30MHz 8 el, 42' bm ...*T	1459.00	1259
Heavy duty boom only for **7.2/10-30**-LPA .*T	499.00	429.95
7.2/10-30-LPA **w/heavy duty boom** .....*T	1921.00	1659
40M-1B 40m rotatable dipole, 46.5' boom ..*	261.00	229.95
40M-2B 40m 2 el beam, 16' boom, 4.9 db ..*	638.00	549.95
40M-3B 40m 3 el beam, 32' boom, 6.5 db ..*	911.00	789.95
Heavy duty boom only for **40M-3B** .....*T	367.00	319.95
40M-3B w/heavy duty boom .....*T	1214.00	1049
40M-4B 40m 4 el beam, 42' boom, 7.2 db ..*	1213.00	1049
Heavy duty boom only for **40M-4B** .....*T	499.00	429.95
40M-4B w/heavy duty boom .....*T	1716.00	1479
40-10V 40/20/15/10m 26.5' vertical .....†m	373.00	249.95
10-30-7LPA 10-30MHz 7el LP, 30' bm, 7db *T	1043.00	899.95
Heavy duty boom only for **10-30-7LPA** .....*T	473.00	409.95
10-30-7LPA w/heavy duty boom .....*T	1577.00	1359
SK-8 Conv kit for 10-30 log w/o 40m dipole ..*	333.00	289.95
SK-8/40M Conv kit for 10-30 log w/40m dipole ..*	502.00	439.95
KT-31 20-15-10m 24.5' rotatable dipole †wfv	317.00	179.95
KT-34A 20-15-10m, 4 el, 16' boom, 7 db	624.00	539.95
KT-34 Upgrade kit - KT-34A to XA .....*	334.00	289.95
KT-34XA 20-15-10m, 6 el, 32' boom, 9 db	858.00	739.95
Heavy duty boom only for **KT-34XA** .....*T	376.00	329.95
KT-34XA w/heavy duty boom .....*T	1206.00	1039
30M-2 30m 2 el beam .....*	520.00	449.95
30M-3 30m 3 el beam .....*	754.00	649.95
20M-4 20m 4 el beam, 21' boom, 7.7 db .....*	541.00	469.95
20M-5 20m 5 el beam, 42' boom, 9.7 db ...*T	837.00	729.95
Heavy duty boom only for **20M-5** .....*T	499.00	429.95
20M-5 w/heavy duty boom .....*T	1248.00	1079
20M-6 20m 6 el beam, 57' boom, 11 db ....*T	1206.00	1039
Heavy duty boom only for **20M-6** .....*T	659.00	569.95
20M-6 w/heavy duty boom .....*T	1750.00	1499
20-30-6LPA 20-30MHz, 6el LP, 19'bm, 7db ..*	391.00	339.95
17M-3 17m 3el beam, 16.75' bm, 6.5db †Tm	443.00	299.95
17M-3 17m 3el beam, 16.75' bm, 6.5db .....*	443.00	419.95
15M-4 15m 4 el beam, 14' boom, 7.7db .....*	287.00	249.95
15M-6 15m 6 el beam, 36' boom, 10.5db ..*T	679.00	589.95
Heavy duty boom only for **15M-6** .....*T	406.00	349.95
15M-6 w/heavy duty boom .....*T	989.00	859.95
15M-6LD As 15M-6, but light duty .....*	527.00	459.95
12-17-30D WARC tri-band dipole .....*	317.00	279.95
12-17-30V WARC tri-band vertical .....*	166.00	149.95
10M-4 10m 4 el beam, 10' bm, 7.7 db .....*	263.00	229.95
10M-6 10m 6 el beam, 27.5' boom, 11 db ...*	415.00	359.95
JV-10 10m 26' vertical antenna .....†wf	122.00	79.95

Note: All KLM antennas supplied with a KLM balun/matching system, which is included in the price.

6M-5 6m 5 el beam, 11.75' boom, 9.7 db	261.00	229.95
6M-7LB 6m 7el, 25.75' bm, 11.5db .....†Tv	381.00	249.95
6M-7LB 6m 7el, 25.75' bm, 11.5db .....*	381.00	329.95
6M-7LD 6m 7 el beam, 20' boom, 10.5 db	298.00	259.95
6M-10 6m 10 el beam, 34' boom, 11.7 db .*T	542.00	469.95

KLM - continued

	Reg	Sale
6M-14 6m 14 el beam, 61' boom, 14 db ....*T	754.00	649.95
JV-6 6m 15' vertical antenna, 3 db	129.00	114.95
2M-4X 2m 4 el rear mt beam, 4.2' bm, 8.5db	81.00	74.95
2M-7X 2m 7 el beam, 8.75' boom, 10.3 db	91.00	84.95
2M-8 2m 8 el beam, 7.25' bm, 10.3db Dmwfv	124.30	99.95
2M-10X 2m 10 el beam, 15' boom, 12.5 db ...	104.00	94.95
2M-11X 2m 11 el beam, 15.33' bm, 12.5 db .	108.00	99.95
2M-12X 2m 12 el beam, 21' beam, 13.4 db ..	116.00	106.95
2M-13LBA 2m 13 el beam, 21.5' bm, 13.3db	125.00	114.95
2M-14C 2m circ 14 el beam, 12.9'bm, 11db/CS3	211.00	184.95
2M-14CM 2m circ 14 el beam, no switcher ...	169.00	149.95
2M-15X 2m 15 el beam, 28' boom, 14.8 db ...	215.00	189.95
2M-16LBXM 2m 16 el beam, 28' boom, 14.5db .	244.00	214.95
2M-20LBX 2m 20 el beam, 38.5' boom	316.00	274.95
2M-22C 2m circ 22el beam, 19'bm, 13db/CS3	265.00	229.95
2M-22CM 2m circ 22 el beam, no switcher ...	237.00	209.95
JV-2 2m 5' vertical antenna, 3 db	131.00	119.95
JV-2X 2m 11' vertical antenna, 5 db	181.00	159.95
220-7 220 7 el beam, 4.75' bm, 8.8 db	98.00	89.95
220-14X 220 14 el beam, 14.5' bm, 13.5db ..	142.00	124.95
220-22LBX 220 22el beam, 29.75'bm, 15.6db .	178.00	154.95
JV-220X 220 7' vertical ant, 5 db .....†mwcv	168.00	89.95
432-20LBX 432 20 el beam, 12.33'bm, 15.3db	189.00	164.95
432-30LBX 432 30 el beam, 22'bm, 17.3db ..	222.00	194.95
435-18C 432 circ 18el beam, 7'bm, 12db/CS2	267.00	229.95
435-18CM 432 circ 18 el beam, no switcher .	186.00	169.95
435-40CX 432 circ 40el beam, 15'bm, 15.2db/CS2	309.00	269.95
435-40CXM 432 circ 40 el beam, no switcher	221.00	199.95
440-6X 440 6 el beam, 2.33' boom, 8.9 db ...	65.00	59.95
440-10X 440 10 el beam, 5.33' bm, 11.2 db .	82.00	74.95
440-16X 440 16 el beam, 10.33'bm, 14.2db .	142.00	124.95
1.2-15LBX 1.2 GHz 15 el beam	127.00	114.95
1.2-24LBX 1.2 GHz 24 el beam	155.00	139.95
1.2-44LBX 1.2GHz 44el beam, 12'bm, 18.2db	200.00	179.95
CS-2 432 antenna circularity switch	85.00	
CS-3 2m antenna circularity switch	55.00	
LO-With Large set: 2M22C/43540CX/7½' mast	585.00	509.95
LO-Without Large set: 2M22CM/43540CXM/mast	462.00	399.95
SO-With Small set: 2M14C/43518C/5' mast .	462.00	399.95
SO-Without Small set: 2M14CM/43518CM/mast	364.00	319.95

FIBERGLASS MASTS

5' 1½" OD fiberglass **mast**	$ 40.00	29.95
7-1/2' 1½" OD fiberglass **mast**	50.00	44.95

COUPLERS/POWER DIVIDERS

440-2N 432 MHz - for 2 ants, w/type N	$ 81.00	
440-4N 432 MHz - for 4 ants, w/type N	91.00	

FERRITE BALUNS

3-60-1:1 3-60 MHz 4kw PEP 1:1 balun	$ 55.00	
3-60-4:1 3-60 MHz 5kw PEP 4:1 balun	62.00	
50-150-1:1 50-150MHz 500w PEP 1:1 bln Dmw	56.00	19.95

*These antennas are drop-shipped (shipped direct to you from the KLM factory). On these factory drop-shipments we prefer payment in full with order, however, we will accept your credit card with the understanding that we will process the charge when we order the merchandise from the factory. This means that you may be billed before you receive your drop-shipped merchandise. Shipment is FOB Monroe, Washington via truck, COD for freight charges only. Freight charges will be collected upon delivery by the carrier. Please allow sufficient time for delivery on these special order antennas.

KANTRONICS (KAN)

Data Engine TNC w/no modems	$319.95	299.95

SHIPPING INFORMATION

AMOUNT OF ORDER	UPS GROUND SHIPPING HANDLING & INSURANCE
Up to $100.00	$4.00
$100.01 to $500.00	$8.00
$500.01 to $1499.99	$12.00
$1500.00 & UP	$16.00

• Shipping/Handling/Insurance Charges are based on the Order Total at the time of the initial shipment. Changes made to a partially shipped order will not affect the shipping charges • Order amount is Pre-Coupon & Pre-Tax • COD fees Not Included, add $6.50 per carton • Includes adequate insurance • Backorders shipped prepaid at AES® expense • Other UPS shipping methods are charged at Regular Rates with No Credit for UPS Ground rate • Does Not Apply to Truck or DROP-SHIPMENTS

KANTRONICS - continued

	Reg	Sale
Data Engine w/DE-1200 modem	389.95	359.95
DE-1200 1200 baud modem	89.95	
DE-19K2/9K6 19,200/9600 baud modem	109.95	
Host Master II Plus IBM software; Data Eng	79.95	
KPC-2 Packet Communicator II controller ....Dm	179.95	149.95
KPC-3 Small packet TNC w/32K RAM	119.95	
KPC-3/128K Small packet TNC w/128K RAM	144.95	139.95
KPC-9612 9600 baud controller/32K mem	229.95	209.95
128K 128K memory upgrade; KPC-3/9612	24.95	
KPC-9612/128K 9600 controller/128K mem	259.95	239.95
KAM Plus All Mode Communicator	339.95	299.95
12VDC Adaptor 300ma adapt; KAM Plus/KPC3	9.95	
Host Master 64 Software; C-64/128 .....Dw	69.95	59.95
Host Master II+ IBM software	79.95	
Host Master Mac Macintosh software	79.95	
Pactor Eprom option; KAM (**pre**-V5) ....Dmv	79.95	49.95
Package 1 Enhancement board; KAM w/8.0E	109.95	
Package 2 8.0E upgrade; KAM enhance brd	29.95	
Package 3 8.0P upgrade; KAM Plus	29.95	
Superfax II WX FAX program for IBM	49.95	
KPC-4 Dual port VHF packet communicator Dmv	259.95	239.95
PC Combo Software for IBM .....Dmfv	49.95	6.95
64/128 Combo Software for C-64/128 ..Dm	49.95	6.95
APRS adapter cable; GPS to Kantronics TNC	29.95	
G-TOR Book	19.95	
Refurb **Bravo Plus VHF** pager spec freq spec order	109.95	
Refurb **Bravo Plus UHF** pager spec freq spec order	109.95	
Pager Handbook for the Radio Amateur	14.95	

KENWOOD (KEN)

	Reg	Sale
TS-950SDX Dlx Xcvr w/keyer/DSP/filters	5299.95	3999.95
DRU-2 Digital recording unit	149.95	139.95
IF-232C Level translator	129.95	119.95
MC-43S Extra 8-pin hand mic w/up-down	59.95	
MC-60A 8-pin amp desk mic w/up-down	159.95	149.95
MC-80 8-pin electret desk mic w/up-down	119.95	109.95
MC-90 2-head DSP desk microphone	269.95	239.95
SM-230 Station monitor w/pan display	1199.95	1039
SP-950 External spkr w/audio filters	159.95	149.95
VS-2 Voice synthesizer	69.95	
YG-455CN-1 250 Hz CW filter (2nd IF)	179.95	164.95
YK-88CN-1 270 Hz CW filter (1st IF)	139.95	129.95
YK-88SN-1 1.8 KHz SSB filter (1st IF)	139.95	129.95
TS-870S 9-band Xcvr/SW Rcvr/IF-DSP/tuner	3199.95	2679.95
DRU-3 Digital recording unit	139.95	129.95
MC-43S Extra 8-pin hand mic w/up-down	59.95	
MC-60A 8-pin amp desk mic w/up-down	159.95	149.95
MC-80 8-pin electret desk mic w/up-down	119.95	109.95
MC-90 2-head DSP desk microphone	269.95	239.95
PS-52 Heavy duty power supply	309.95	269.95
SM-230 Station monitor w/pan display	1199.95	1039
SO-2 TCXO unit	189.95	179.95
SP-31 External speaker	99.95	
VS-2 Voice synthesizer	69.95	
S-850S 9-band Xcvr/.1-30 MHz Rcvr/mic	1999.95	1679.95
T-850 Internal auto antenna tuner	279.95	249.95
[illegible]50S/AT 9-band Xcvr/.1-30 MHz Rcvr/tuner	2199.95	1769.95
AT-300 External auto antenna tuner	699.95	609.95
DRU-2 Digital recording unit	149.95	139.95
IF-232C Level translator	129.95	119.95
MC-43S Extra 8-pin hand mic w/up-down	59.95	
MC-60A 8-pin amp desk mic w/up-down	159.95	149.95
MC-80 8-pin electret desk mic w/up-down	119.95	109.95
MC-90 2-head DSP desk microphone	269.95	239.95
PG-2X Heavy duty DC cable .....Dmwf	37.95	
PG-2Z Heavy duty DC cable	37.95	
PS-52 Heavy duty power supply	309.95	269.95
RM-1 Remote control unit	59.95	
SM-230 Station monitor w/pan display	1199.95	1039
SO-2 TCXO unit	189.95	179.95
SP-31 External speaker	99.95	

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KENWOOD - continued

	Reg	Sale
VS-2 Voice synthesizer	69.95	
YG-455C-1 500 Hz CW filter (2nd IF)	169.95	159.95
YG-455CN-1 250 Hz CW filter (2nd IF)	179.95	164.95
YK-88C-1 500 Hz CW filter (1st IF)	139.95	129.95
YK-88CN-1 270 Hz CW filter (1st IF)	139.95	129.95
YK-88SN-1 1.8 KHz SSB filter (1st IF)	139.95	129.95
TS-450S 9-band Xcvr/SW Rcvr/mic	1469.95	1249.95
TS-690S 9-band Xcvr w/6m/SW Rcvr/mic	1769.95	1499.95
AT-450 Internal 80-10m auto tuner	279.95	249.95
TS-450S/AT 9-band Xcvr/SW Rcvr/tuner/mic	1649.95	1339.95
AT-50 External auto tuner	379.95	329.95
PG-4M 18' extension cable for AT-50	29.95	
AT-300 External auto antenna tuner	699.95	609.95
IF-232C Level translator	129.95	119.95
MB-430 Mobile mounting bracket	49.95	
MC-43S Extra 8-pin hand mic w/up-down	59.95	
MC-60A 8-pin amp desk mic w/up-down	159.95	149.95
MC-80 8-pin electret desk mic w/up-down	119.95	109.95
MC-90 2-head DSP desk microphone	269.95	239.95
PG-2X Heavy duty DC cable .....Dmwf	37.95	
PG-2Z Heavy duty DC cable	37.95	
PS-33 Light duty 20.5A power supply	239.95	209.95
PS-53 Heavy duty 22.5A power supply	289.95	249.95
SO-2 TCXO unit	189.95	179.95
SP-23 External speaker	89.95	
TU-8 CTCSS tone unit	54.95	
VS-2 Voice synthesizer	69.95	
YG-455C-1 500 Hz CW filter (2nd IF)	169.95	159.95
YG-455CN-1 250 Hz CW filter (2nd IF)	179.95	164.95
YK-88C-1 500 Hz CW filter (1st IF)	139.95	129.95
YK-88CN-1 270 Hz CW filter (1st IF)	139.95	129.95
YK-88S-1 2.4 KHz SSB filter (1st IF)	139.95	129.95
YK-88SN-1 1.8 KHz SSB filter (1st IF)	139.95	129.95
TS-50S Compact HF Xcvr/SW Rcvr/mic/mt	1359.95	1039.95
TS-60S Compact 6m Xcvr/mic/mt	1239.95	1049.95
AT-50 External HF auto tuner	379.95	329.95
PG-4M 18' extension cable for AT-50	29.95	
AT-300 External HF auto antenna tuner	699.95	609.95
IF-10D Computer interface	89.95	
IF-232C Level translator	129.95	119.95
MB-13 Deluxe quick release mtg bracket	55.95	
MC-47 Extra multi-func 8-pin hand mic	59.95	
MC-60A 8-pin amp desk mic w/up-down	159.95	149.95
MC-80 8-pin electret desk mic w/up-down	119.95	109.95
PG-2Y DC cable	39.95	
PS-33 Light duty 20.5A power supply	239.95	209.95
PS-40 Switching power supply	229.95	199.95
PS-53 Heavy duty 22.5A power supply	289.95	249.95
SO-2 TCXO unit	189.95	179.95
SP-23 External speaker	89.95	
TC-50/50Case Travel case for TS-50S/60S	89.00	
YK-107C 500 Hz CW filter	139.95	129.95
TS-140S Xcvr/.5-30 MHz Rcvr/mic .....Dmwfc	1149.95	969.95
AT-50 External auto tuner	379.95	329.95
PG-4M 18' extension cable for AT-50	29.95	
MB-430 Mobile mounting bracket	49.95	
MC-43S Extra 8-pin hand mic w/up-down	59.95	
MC-60A 8-pin amp desk mic w/up-down	159.95	149.95
MC-80 8-pin electret desk mic w/up-down	119.95	109.95
PG-2X Heavy duty DC cable .....Dmwf	37.95	
PG-2Z Heavy duty DC cable	37.95	
PS-33 Light duty 20.5A power supply	239.95	209.95
SP-23 External speaker	89.95	
TU-8 CTCSS tone unit .....Δmf	54.95	
YG-455C-1 500 Hz CW filter	169.95	159.95
YK-455C-1 500 Hz CW filter .....Δmwf	114.95	109.95
R-5000 100 KHz-30 MHz digital receiver	1249.95	1029.95
DCK-2 DC cable kit w/cig plug .....Dmwc	14.95	
IC-10 IC kit for computer control .....Dm	46.95	
IF-232C Level translator	129.95	119.95
MB-430 Mobile mounting bracket	49.95	
SP-23 External speaker	89.95	
VC-20 108-174 MHz VHF converter	229.95	199.95
YK-88A-1 AM filter	104.95	99.95
YK-88C 500 Hz CW filter	139.95	129.95
YK-88CN 270 Hz CW filter	104.95	99.95
YK-88SN 1.8 KHz SSB filter	139.95	129.95
HS-5 Deluxe headphones	79.95	

KENWOOD - continued

	Reg	Sale
HS-6 Lightweight headphones	59.95	
LF-30A 1kw PEP low pass filter	64.95	
MA-5 5-band 200w PEP HF mobile antenna	189.95	174.95
VP-1 Hvy duty chrome spg, bpr mt for MA-5	64.95	
MC-43S 8-pin hand mic w/up-down switch	59.95	
MC-60A 8-pin amp desk mic w/up-down	159.95	149.95
MC-80 8-pin electret desk mic w/up-down	119.95	109.95
MJ-48 4-pin mic to 8-pin Xcvr adapt	19.95	
MJ-64 6-pin mic to 4-pin Xcvr adapt .....Dm	14.95	29¢
E30-1765-08 Adapt cord; MC-85 - 8-pin Xcvr	21.95	
PC-1A 8-pin phone patch	139.95	129.95
PG-3B 15A DC line noise filter	29.95	
PG-3G 25A DC line noise filter	51.95	
RCS-1 Radio Construction Set IBM soft .....Δm	49.95	14.95
SP-41 Compact external speaker	49.95	
SP-50B High quality external mobile speaker	55.95	
SW-2100 1.8-30MHz 2kw SWR/power meter	174.95	159.95
TU-7 Prog encoder; TR-751A .....Δm	54.95	
TM-255A 40w 2m SSB/FM Xcvr/9600 baud	1109.95	929.95
TM-455A 35w 430-440 SSB/FM/9600 ...Dmfv	1279.95	598.95
DFK-3 9' separate display cable kit	26.95	
DFK-4 13' remote cable kit	59.95	
DFK-7A Deluxe 22' remote cable kit	99.95	
PG-5A Packet data cable	15.95	
TSU-8 CTCSS decoder	59.95	
TS-790A 45w 2m/40w 440 SSB/FM Xcvr/mic	2199.95	1849.95
IF-232C Level translator	129.95	119.95
MC-43S Extra 8-pin hand mic w/up-down	59.95	
MC-60A 8-pin amp desk mic w/up-down	159.95	149.95
MC-80 8-pin electret desk mic w/up-down	119.95	109.95
PG-2X Heavy duty DC cable .....Dmwf	37.95	
PG-2Z Heavy duty DC cable	37.95	
PS-31 Power supply .....Dfv	219.95	169.95
SP-31 External speaker	99.95	
TSU-5 Programmable CTCSS decoder	64.95	
UT-10 10w 1.2 GHz module	629.95	539.95
VS-2 Voice synthesizer	69.95	
TM-642A 2m/220 FM Xcvr w/TTP	959.95	819.95
TM-642AD 2m/220 FM Xcvr/backlit TTP mic	989.95	849.95
TM-742A 50/35w 2m/440 FM Xcvr w/TTP	949.95	749.95
TM-742AD 50/35w 2m/440 FM/backlit TTP mic	959.95	829.95
TM-942A 50/35/10w 2m/440/1.2 FM/TTP	1309.95	1099.95
DFK-3 9' separate display cable kit	26.95	
DFK-4 13' remote cable kit	59.95	
DFK-7 Deluxe 22' remote cable kit	89.95	
MJ-88 Modular to 8-pin mic adapter	30.95	
MJ-89 Modular mic switch	69.95	
TSU-7 CTCSS decoder unit	59.95	
UT-28S 50w 10m unit .....Dmwfv	339.95	169.95
UT-50S 50w 6m unit	379.95	329.95
UT-220S 25w 220 MHz unit	379.95	329.95
UT-440S 35w 440 MHz unit	339.95	299.95
UT-1200 10w 1.2 GHz unit	459.95	399.95
TM-733A 50/35w 2m/440 FM Xcvr/TTP/9600	799.95	599.95
TM-733AHKBLD 2m/440/backlit/9600/dplxr	829.95	629.95
DFK-3B 9' separate display cable kit	39.95	
DFK-4B 13' remote cable kit	60.95	
DFK-7B Deluxe 22' remote cable kit	99.95	
PG-5A Packet data cable	15.95	
TSU-8 CTCSS decoder	59.95	
MA-700 3db 2m/5.5db 440 ant w/duplexer	109.95	99.95
Larsen **PO-K** Roof mt, coax; MA-700	24.00	
Larsen **PO-MM** Magnet mt, coax; MA-700	31.70	
Larsen **PO-TLM** Trunk lip mt, coax; MA-700	27.30	
TM-241A 50w 2m FM Xcvr w/TTP mic	459.95	279.95
TM-241AHK2L 50w 2m FM/backlit TTP mic	479.95	299.95
TM-331A 25w 220 FM Xcvr w/TTP mic	579.95	499.95
TM-441A 35w 440 FM Xcvr w/TTP mic	579.95	499.95
DTU-2 Digital paging unit	32.95	
KQT-8/TSU-6 Prog CTCSS decoder	49.95	
MC-44DM Extra multi-function TTP mic	79.95	
TM-251A 50w 2m FM Xcvr/TTP/9600 baud	529.95	319.95
TM-451A 35w 440 FM Xcvr/TTP/9600 baud	599.95	499.95
MC-45DM Extra multi-function TTP mic	79.95	
ME-1 Memory expansion	39.95	
PG-5A Packet data cable	15.95	
TSU-8 CTCSS decoder	59.95	
TM-261A 50w 2m FM Xcvr w/TTP mic	429.95	369.95

KENWOOD - continued

	Reg	Sale
TM-461A 35w 440 FM Xcvr w/TTP mic	509.95	439.95
TSU-8 CTCSS decoder	59.95	
MC-48B Up-down 8-pin TTP mic .....Dmwv	89.95	
MC-52DM Back-lit TTP mic;241/331/441/541	79.95	
MC-53DM Back-lit TTP mic;251/733/742/255	79.95	
Accessory: TH-A/B/2600A/3600A/2500/3500		
RA-9B 220 BNC stubby duck .....Dm	$ 18.95	1.95
Accessory for TH-225A/315A/415A/205AT		
SC-27 Soft case for TH-225A w/PB-12 .....Dm	$ 19.50	49¢
Accessories for TH-75A/77A/25AT/26AT		
BT-6 6-AA battery case	$ 29.95	
DC-1 DC adapter .....Dm	26.95	69¢
PG-3E Cig cord w/filter for DC-1	35.95	
DC-4 Mobile charger for PB-10 .....Dmf	20.95	99¢
KNB-5A 800ma 7.2v battery	63.95	
KNB-6A 1600ma 7.2v (2.5/2w) battery ...Dmv	97.50	89.95
KNB-7A 800ma 12v (5w) batt (not 55AT)	87.95	
KQT-8/TSU-6 CTCSS encoder/decoder	49.95	
KWR-1/WR-1 Water resistant bag .....Dwf	22.00	14.95
Accessories for TH-26AT/46AT		
SC-24 Soft case for PB-5/BT-7 .....Dm	$ 22.95	99¢
SC-26 Soft case for PB-7/8/9 .....Dm	22.95	49¢
Accessory for TH-27A/47A		
SC-32 Soft case for PB-14 .....Dm	$ 21.95	2.95
TH-28A 2.5w 2m FM HT/batt/cgr/TTP	399.95	329.95
TH-48A 2w 440 FM HT/batt/cgr/TTP	469.95	409.95
Accessories for TH-28A/48A/78A		
BC-15A Rapid charger for PB-13/14/17/18	$119.95	109.95
BH-6 Swivel mount	39.95	
BT-8 AA alkaline battery case	29.95	
EMC-1 Lapel clip mic/ear piece	43.95	
HMC-2 VOX/boom mic headset .....Dmfv	72.95	69.95
HMC-3 VOX/boom mic headset	72.95	
KLF-3/PG-3F Cig cord w/filter .....Dmwf	23.50	
ME-1 Memory expansion	39.95	
PB-13 700ma 7.2v battery	67.95	
PB-14 300ma 12v (5w) battery .....Dmwfcv	90.95	59.95
PB-17 700ma 12v (5w) battery	99.95	
PB-18 1100ma 7.2v battery	89.95	
PG-2W DC cable w/fuse	17.95	
PG-3H Cig lighter cord w/filter .....Dmwfv	36.95	
PG-3J Cig lighter cord w/filter	36.95	
SC-33 Small soft case; 28A/48A	24.95	
SC-34 Large soft case; 28A/48A	24.95	
SC-35 Regular soft case; 78A .....Δmwv	24.95	
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SMC-33 Speaker/mic w/remote control	65.95	
SMC-34 Spkr/mic w/vol cont & function keys	67.95	
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TH-42AT 2.5w 440 FM HT/batt/cgr/TTP	399.95	339.95
TH-79A(D) 2.7w 2m/440 FM HT/batt/cgr/TTP	629.95	459.95
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BH-6 Swivel mount	39.95	

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HMC-3 VOX/boom mic headset	72.95	
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KSC-14 2-pack rapid charger	87.95	
PB-32 600ma 6v battery	66.95	
PB-33 1200ma 6v battery	89.95	
PB-34 600ma 9.6v (5w) battery	89.95	
PG-2W DC cable w/fuse	17.95	
PG-3J Cig lighter cord w/filter	36.95	
RA-3 2m BNC ¾ wave telescopic ant ..Dmw	25.95	19.95
SC-37 Soft case; TH-22/42AT w/PB-30/32	24.95	
SC-39 Soft case; TH-22/42AT w/PB-33/34	24.95	
SC-41 Soft case; TH-79A(D) w/PB-32	24.95	
SC-43 Soft case; TH-79A(D) w/PB-33/34	24.95	
SMC-31 Speaker/mic/rt angle plug .....Dc	59.95	
SMC-32 Mini water resist rt angle spkr/mic	52.95	
SMC-33 Speaker/mic w/remote control	65.95	
SMC-34 Spkr/mic w/vol cont/function keys	67.95	
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1768	2m/440 beam antenna	69.95	
1778	G5RV 160-10m 102' ant (needs tuner)	29.95	
1780	14-30 MHz 150w 2 'x 2' box loop ant	229.95	199.95
1782	Super Hi-Q 10-30MHz loop/basic control	269.95	239.95
1786	Super Hi-Q 10-30MHz loop/dlx control	299.95	269.95
1312B	12vdc 300ma adapter; 1782/1786	12.95	
1793	80/40/20m vertical antenna	179.95	159.95
1796	40/20/15/10/6/2m 10' vertical ant	199.95	179.95
1798	80/40/30/20/17/15/12/10/6/2m 20' vert	269.95	249.95
1824BB	Cell look alike BNC scanner ant	19.95	
1824BM	Cell look Motorola plug scanner ant	19.95	
1828B	Magnet mt BNC scanner antenna	29.95	
1828M	Mag mt Motorola plug scanner ant	29.95	
1864	Base scanner antenna w/preamp	79.95	69.95
2040	Repeater controller .....Dw	449.95	229.95
3036	The Packet Radio Operators book	12.95	
3101	Fox Hunt Adventure book	7.95	
3210	Novice license guide	7.95	
3211	Tech Plus license guide	7.95	
3212	No code tech license guide	14.95	
3213	General license guide	7.95	
3214	Advanced license guide	7.95	
3215	Extra license guide	7.95	
3301	Troubleshooting Antenna & Feedlines book	12.95	
3302	73 Dipole and Long-Wire Antennas	12.95	
3303	73 Vertical, Beam, and Triangle Ants	12.95	
3304	Technician Antenna Handbook ....Dmwv	9.95	6.95
3502	Solid State QRP Projects	12.95	
3504	FET Principles, Experiments & Projects	16.95	
5024	MFJ TNC - Ico/Yae/Ali/RS HT cable	14.95	
5024X	PK-232 - Ico/Yae/Ali/RS HT cable	14.95	
5024YV	KAM VHF/KPC3 - Ico/Yae/Ali/RS HT cbl	14.95	
5024Z	PK-88 - Ico/Yae/Ali/RS HT cable	14.95	
5026	MFJ TNC - Kenwood HT cable	14.95	
5026X	PK-232 - Kenwood HT cable	14.95	
5026YV	KAM VHF/KPC3 - Kenwood HT cable	14.95	
5026Z	PK-88 - Kenwood HT cable	14.95	
5080	MFJ TNC - Yaesu 8-pin cable	14.95	
5080M	MFJ TNC - Yaesu 8-pin modular	14.95	
5080MX	PK-232 - Yaesu 8-pin modular	14.95	
5080MYV	KAM VHF/KPC3 - Yaesu 8-pin mod	14.95	
5080MZ	PK-88 - Yaesu 8-pin modular	14.95	
5080X	PK-232 - Yaesu 8-pin cable	14.95	
5080YH	KAM HF port - Yaesu 8-pin cable	14.95	
5080YV	KAM VHF/KPC3 - Yaesu 8-pin cable	14.95	
5080Z	PK-88 - Yaesu 8-pin cable	14.95	
5082	Open end - 8-pin mic cable	9.95	
5084	MFJ TNC - Icom 8-pin cable	14.95	
5084M	MFJ TNC - Icom 8-pin modular	14.95	
5084MX	PK-232 - Icom 8-pin modular	14.95	

MFJ - continued

		Reg	Sale
5084MYV	KAM VHF/KPC3 - Icom 8-pin mod	14.95	
5084MZ	PK-88 - Icom 8-pin modular	14.95	
5084X	PK-232 - Icom 8-pin cable	14.95	
5084YH	KAM HF port - Icom 8-pin cable	14.95	
5084YV	KAM VHF/KPC3 - Icom 8-pin cable	14.95	
5084Z	PK-88 - Icom 8-pin cable	14.95	
5086	MFJ TNC - Kenwood/Alinco 8-pin cable	14.95	
5086M	MFJ TNC - Kenwood 8-pin modular	14.95	
5086MX	PK-232 - Kenwood 8-pin modular	14.95	
5086MYV	KAM VHF/KPC3 - Ken 8-pin mod	14.95	
5086MZ	PK-88 - Kenwood 8-pin modular	14.95	
5086X	PK-232 - Kenwood/Alinco 8-pin cable	14.95	
5086YH	KAM HF port - Ken/Ali 8-pin cable	14.95	
5086YV	KAM VHF/KPC3 - Ken/Ali 8-pin cable	14.95	
5086Z	PK-88 - Kenwood/Alinco 8-pin cable	14.95	
5205	5-pin DIN open end cable	4.95	
5222	Open end - Alinco split HT cable	9.95	
5224	Open end - Ico/Yae/Ali/RS HT cable	9.95	
5226	Open end - Kenwood HT cable	9.95	
5268	Open end - modular phone plug cable	9.95	
5412	IBM printer cable	9.95	
5413	RS-232 cable DB-25M-252	9.95	
5414	RS-232 cable DB-25M-9F2	9.95	
5803/10	3' coax jumper cable	4.95	
8100K	Shortwave regenerative Rcvr kit	59.95	
8100W	Shortwave regenerative Rcvr wired	79.95	72.95
8400K	2m receiver kit	79.95	72.95
8400W	2m receiver wired	99.95	89.95
8621	VHF data radio w/145.01 MHz	119.95	109.95
8621X1	APRS ready VHF data radio/145.79MHz	139.95	129.95
4110	Portable AC power supply	39.95	
5100	Data radio cable - MFJ/TAPR	14.95	
5100X	Data radio cable - PK-232	14.95	
5100YH	Data radio cable - KPC-9612	14.95	
5100YV	Data radio cable - KAM/KPC-3	14.95	
5100Z	Data radio cable - PK-88	14.95	
9015	5w 15m CW Xcvr	189.95	169.95
9017	5w 17m CW Xcvr	189.95	169.95
9020	5w 20m CW Xcvr	189.95	169.95
9030	5w 30m CW Xcvr	189.95	169.95
9040	5w 40m CW Xcvr	189.95	169.95
27	Handle for CW station	4.95	
412	Plug-in Curtis keyer	39.95	
726	Plug-in audio filter	29.95	
971	200w portable ant tuner w/meter	89.95	84.95
1770	Portable 15m dipole	34.95	
1771	Portable 17m dipole	34.95	
1772	Portable 20m dipole	34.95	
1773	Portable 30m dipole	34.95	
1774	Portable 40m dipole	34.95	
4112	Portable power pack	49.95	
4114	Rechargeable power pack	69.95	64.95
9115B	9015 Xcvr/971 tuner/4114 ps/1770 ant	339.80	299.95
9117B	9017 Xcvr/971 tuner/4114 ps/1771 ant	339.80	299.95
9120B	9020 Xcvr/971 tuner/4114 ps/1772 ant	339.80	299.95
9130B	9030 Xcvr/971 tuner/4114 ps/1773 ant	339.80	299.95
9140B	9040 Xcvr/971 tuner/4114 ps/1774 ant	339.80	299.95
9420X	12w 20m SSB Xcvr w/mic	239.95	219.95
9440X	12w 40m SSB Xcvr w/mic	239.95	219.95
9406X	6m SSB Xcvr w/mic	259.95	239.95
415	SSB Xcvr CW adaptor	39.95	
971	200w HF portable ant tuner w/meter	89.95	84.95
4110	Portable AC power supply	39.95	
4114	Rechargeable power pack	69.95	64.95
416	CW adapter for 9406X	39.95	
1776	6m dipole for 9406X	34.95	

MAGELLAN (MAG)

GPS-2000	GPS receiver	$279.99	199.95
GPS-4000	GPS receiver w/carrying case	349.99	249.95
00-69007-000	External power module	49.99	
Meridian XL	GPS/track plotter/detach ant/case	399.00	299.95

MAHA (MAH)

MH-BP-7	900ma 13.8v Icom nickel hydride	$ 69.00	
MH-BP-8	1200ma 8.4v Icom nickel hydride	59.00	
MH-BP-8H	1800ma 8.4v Icom nickel hydride	69.00	
MH-BP-132	900ma 12v Icom nickel hydride	59.00	

MAHA - continued

		Reg	Sale
MH-CNB-152	900ma 12v Sta nickel hydride	59.00	
MH-CNB-153	1200ma 7.2v Sta nickel hydride	49.00	
MH-FNB-12	900ma 12v Yaesu nickel hydride	59.00	
MH-FNB-27	900ma 12v Yaesu nickel hydride	59.00	
MH-FNB-38	650ma 9.6v Yaesu nickel hydride	59.00	
MH-FNB-41	900ma 9.6v Yaesu nickel hydride	55.00	
MH-PB-8	1200ma 12v Kenwood nickel hydride	62.00	
MH-PB-17	900ma 12v Kenwood nickel hydride	69.00	
MH-PB-18	1200ma 7.2v Kenwood nickel hydride	49.00	
MH-PB-32	900ma 6v Kenwood nickel hydride	47.00	
MH-PB-33	1200ma 6v Kenwood nickel hydride	49.00	
MH-PB-34	900ma 9.6v Kenwood nickel hydride	57.00	

MALDOL (MAL)

AH-209S	2m/440 3" duck	$ 18.99	
ARD-5B	2m/440 0/3.8db 19.6" mobile ant	59.99	
ARD-6	2m/440 2.6/4.9db 26.8" mobile ant	70.99	
ARD-6B	Black 2m/440 2.6/4.9db 26.8" mob	70.99	
ARD-10	2m/440 3/5.5db 34.8" mobile ant	70.99	
ARD-10B	Black 2m/440 3/5.5db 34.8" mob	70.99	
ARD-12	2m/440 4.3/6.8db 48.8" mobile ant	97.99	
ARD-12B	Black 2m/440 4.3/6.8db 48.8" mob	97.99	
ARD-16	2m/440 5/7.7db 65.6" mobile ant	99.99	
ARD-16B	Black 2m/440 5/7.7db 65.6" mob	99.99	
ARS-50	6m 1/4 wave 61.2" mobile antenna	74.99	
ARS-146	2m 4.1db 56" mobile antenna	77.99	
ARS-146B	Black 2m 4.1db 56" mobile ant	77.99	
ARS-440	440 5.5db 38.4" mobile antenna	67.99	
ARS-440B	Black 5.5db 38.4" mobile ant	67.99	
EX-110	2m/440 3/5.5db 37.8" mobile ant	64.99	
EX-110B	Black 2m/440 3/5.5db 37.8" mob	64.99	
EX-111	2m/440 3.6/6db 44" mobile antenna	77.99	
EX-111B	Black 2m/440 3.6/6db 44" mobile	77.99	
FA-50	2m/440 2.15/3.2db 18.8" mag mt ant	51.99	
FR-30	2m/440 15" flexible telescopic whip	52.99	
HS-702S	2m/440 0/3.2db 17.6" duck	19.99	
HS-FOX727	2m/440 9.5/11.15db 3/5el beam	119.99	
MK-30H	Hatch/trunk power mount	164.99	
MK-30K	Roofrail/carrier power mount	164.99	
RG-4M	13' coax & connector	17.99	

MIRAGE (MIR)

A-1015G	6m FM/SSB 10/150w amp/preamp	$389.00	349.95
A-1035G*	6m FM/SSB 10/350w 28v amp/pre	659.00	589.95
B-23	2m FM/SSB 2/30w amplifier .....Dmwfv	129.00	99.95
B-23G	2m FM/SSB 2/30w amp/preamp	169.00	154.95
B-34	2m FM 2/35w amplifier	79.00	
B-34G	2m FM/SSB 3.5/35w amp/preamp	99.00	
B-215G	2m FM/SSB 2/150w amp/preamp	379.00	339.95
B-108G	2m FM/SSB 10/80w amp/preamp	229.00	204.95
B-1016G	2m FM/SSB 10/160w amp/preamp	379.00	339.95
B-1030G	2m FM/SSB 10/300w amp/preamp	689.00	619.95
B-1060G*	2m FM/SSB 10/600w 28v amp/pre	1094.00	989.95
B-2516G	2m FM/SSB 25/160w amp/preamp	299.00	269.95
B-2530G	2m FM/SSB 25/300w amp/preamp	689.00	619.95
B-2560G*	2m FM/SSB 25/600w 28v amp/pre	1094.00	989.95
B-5016G	2m FM/SSB 50/160w amp/preamp	299.00	269.95
B-5030G	2m FM/SSB 50/300w amp/preamp	669.00	599.95
B-5060G*	2m FM/SSB 50/600w 28v amp/pre	1094.00	989.95

*Requires 28 volts; information on combining power supplies included in operations manual.

BD-35	2m/440 3/45//4/35w HT amp	199.00	179.95
C-22	220 FM/SSB 2/20w amplifier	129.00	119.95
C-22G	220 FM/SSB 2/20w amp/preamp	169.00	154.95
C-211G	220 FM/SSB 2/110w amp/preamp	339.00	299.95
C-106G	220 FM/SSB 10/60w amp/preamp	239.00	214.95
C-1012G	220 FM/SSB 10/120w amp/preamp	339.00	299.95
C-1022G	220 FM/SSB 10/220w amp/preamp	655.00	589.95
C-2512G	220 FM/SSB 25/120w amp/preamp	315.00	289.95

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C-2522G 220 FM/SSB 25/220w amp/preamp	655.00	589.95
C-5012G 220 FM/SSB 50/120w amp/preamp ..	334.00	299.95
C-5022G 220 FM/SSB 50/220w amp/preamp ..	639.00	569.95
D-15N 430 FM/SSB/ATV 2/18w type N amp ...	189.00	169.95
D-26N 440 FM/SSB 2/60w type N amplifier ...	269.00	244.95
D-1010N 440 FM/SSB 10/100w type N amp ..	395.00	354.95
D-3010N 440 FM/SSB 30/100w type N amp ..	365.00	329.95
D-100-ATVN 430 ATV 1/52w type N amp	414.00	369.95
D-1010-ATVN 430 ATV 10/100w type N amp ..	414.00	369.95
RC-1* Remote control head w/18' cable	45.00	

*Not for B-23/C-22/D-26

The following Repeater Amplifiers are available on Special Order. Specify SO-239 or type N connectors

A-1015NR 6m FM 2/80w type N amplifier	$599.00	539.95
A-1015R 6m FM 2/80w SO-239 amplifier	579.00	519.95
B-215NR 2m FM 1/110w type N amplifier	579.00	524.95
B-215R 2m FM 1/110w SO-239 amplifier	559.00	504.95
B-1016NR 2m FM 2/120w type N amplifier ...	619.00	559.95
B-1016R 2m FM 2/120w SO-239 amplifier	599.00	539.95
B-2516NR 2m FM 12/120w type N amplifier .	569.00	519.95
B-2516R 2m FM 12/120w SO-239 amplifier ..	549.00	499.95
C-211NR 220 FM .5/80w type N amplifier	649.00	584.95
C-211R 220 FM .5/80w SO-239 amplifier	629.00	564.95
C-1012NR 220 FM 5/90w type N amplifier	649.00	584.95
C-1012R 220 FM 5/90w SO-239 amplifier	629.00	564.95
C-2512NR 220 FM 15/90w type N amplifier ..	615.00	559.95
C-2512R 220 FM 15/90w SO-239 amplifier ...	595.00	539.95
D-1010NR 440 FM 4/80w type N amplifier	654.00	589.95
D-3010NR 440 FM 12/80w type N amplifier ..	625.00	564.95
D-100-ATVN-R 430 ATV 1/40w type N amp	654.00	589.95
D-1010-ATVN-R 430 ATV 4/80w type N amp ..	654.00	589.95

PREAMPS

KP-1/10M 10m in shack preamp	$139.00	124.95
KP-1/6M 6m in shack preamp	139.00	124.95
KP-1/2M 2m in shack preamp	139.00	124.95
KP-1/220 220 in shack preamp	139.00	124.95
KP-1/440 440 in shack preamp	139.00	124.95
KP-2/10M 10m mast mount preamp	195.00	174.95
KP-2/6M 6m mast mount preamp	195.00	174.95
KP-2/2M 2m mast mount preamp	195.00	174.95
KP-2/220 220 mast mount preamp	195.00	174.95
KP-2/440 440 mast mount preamp	195.00	174.95

WATTMETERS

MP-1 160-10m 25/200/2kw PEP wattmeter ..	$235.00	209.95
MP-2 6 & 2m 50/500/1.5kw PEP wattmeter ..	235.00	209.95
MP-3 420-450 5/50/500w PEP wattmeter	265.00	239.95
MP-4 1.2 GHz 1/10/100w PEP wattmeter	279.00	259.95

NCG (NCG)

BB-516 Motorcycle intercom set	$ 89.95
BJP-514 Motorcycle earph/mic; Ali/Ico/Sta/Yae	69.95
BJP-514K Motorcycle earphone/mic; Kenwood	69.95
M-921 Spkr/mic earpiece; Ali/Ico/Ken/Yae ...	44.95
-921K Spkr/mic earpiece; Kenwood	44.95
C-910 Earpiece/bm mic w/cap-clip/ear hook	49.95
MH-900P Earpiece/boom mic/PTT; Ken HT ...	39.95
MH-900PK Earpiece/boom mic/PTT; Ken HT ...	39.95
MP-28 Boom mic/headset/PTT; all HT but Ken	39.95
MP-28K Boom mic/headset/PTT for Ken HT ...	39.95
Power Pocket 12v 2AH lead acid belt batt/cgr	66.95

NAVAL (NAV)

HTS-3 5-15vdc amplified speaker	$ 29.95
MK-303 Earphone/PTT/mic for Icom HT's	14.95

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Traveler 19' extended Portaple alum mast .m	124.95	
Rover 26' extended Portaple alum mast .....m	149.95	
Expeditioner 33' extended Portaple alum mast m	174.95	
Explorer 40' extended Portaple alum mast m	199.95	
Big Foot Welded, unpainted park-on mt ..m	119.95	

NICAD BATTERIES

JBRO NICAD (JAB)

J/CM-7F 13.2v 450ma batt for Icom .....Δmv	$ 72.70	29.95

NORCOMM (NOR)

NC-101 Tunable CTCSS encoder	$ 19.95
NC-104 Programmable CTCSS encoder	24.95
NC-106 Prog CTCSS encoder/decoder	54.95
NC-401 Sub-miniature DTMF decoder	59.95
NC-409 DTMF encoder	59.95

NYE VIKING (NYE)

ANTENNA TUNERS AND ACCESSORIES

MBV-A 3kw tuner with ant switch & meters ..	$830.00	729.95
MBV-B As MBV-A, without meters	689.00	599.95
020-001 2kw low-pass filter	49.00	

MASTER KEY

330-001 Black enamel base w/cable, plug ...	$ 65.00

HEAVY DUTY SPEED-X KEYS WITH NAVY KNOBS

320-001 No shorting switch	$ 31.00
320-003 As above, w/shorting switch	36.00
322-001 Brass hardware, no switch	31.00
322-003 As above, w/shorting switch	36.00

STANDARD SPEED-X KEYS

310-001 Black, no shorting switch	$ 28.40	
310-003 As above, w/shorting switch	33.50	
312-001 Brass arm, no shorting switch	28.60	
312-003 As above, w/shorting switch	33.50	
315-003 Brass oval key, steel base, short sw	63.95	

KEY ACCESSORIES

013-001 Navy knob	$ 15.50	
300-001 Black plastic base for keys .....Df	8.00	1.95

CODE PRACTICE SETS (BUZZER)

404-001 Code practice set, no key .....Δwfv	$ 24.50	4.95

Oak Bay Technologies (OAK)

AM-101B BNC duck window mount	$ 24.95
CA-232HH Handheld packet cable	34.95
CA-232U Universal packet cable	34.95
LP-11P 1.8-30 MHz 1kw low-pass filter	69.95
LP-50 1.8-54 MHz 1kw low-pass filter	69.95
PS-101 Heavy duty DC power strip	79.95

Optoelectronics (OPT)

8040 Multifunction 10-digt ctr/timer ..Dmwfv	$679.00	499.95
8040DLX 10-dig counter/.05ppm oven/nicads	999.00	
Cub 1 MHz - 2.8GHz 9-digit mini-counter	149.00	
Optolinx PC-radio universal interface	129.00	
R-10 30-2000MHz FM communications Interceptor	299.00	
CF-802 Band pass filter/amp; 825-845MHz	149.00	
Scout/400/Scout 10-2800MHz freq rec/counter	449.00	
Clipmate Windshield mount for Scout/400 .	25.00	
DB-32 Mini 1.75" antenna for Scout/400 ...	29.00	
Spectrum FCC database CDROM/Scout prog	29.00	
SSB-220A SSB/gen purpose 3GHz bench ctr ..	329.00	
Antenna Pack 2 5 tuned ants; 26MHz-1GHz .	99.00	
BHP-800 High pass receiving filter	40.00	
BLP-70 Low pass receiving filter	40.00	
CB-232 PC interface cable	39.00	
CC-30 Vinyl case for R-10//Scout/400	9.00	
N-100 FM broadcast band notch filter	99.00	
Optolog Software for 8040/SSB-220A	25.00	
P-30 1X/10X switchable probe; counter/scope	35.00	
TA-100S 100-600MHz telescoping whip ant .	12.00	

OUTBACKER (OUT)

OB-8 300w PEP 6' 75-10m 8-band mobile ant ..	$259.00	
OB-8HP 500w PEP 6' 75-10m 8-band mob ant .	289.00	
OB-S8 8-band mobile ant w/storage bag	289.00	
OB-8TRI 3-pc 300w PEP 6' 8-band port ant ..	319.00	

OUTBACKER - continued

	Reg	Sale
OB-JR8 150w PEP 4' 75-10m 8-band mob ant .	229.00	
Perth 7.5' 75/40/30/20/17/12/10m mobile ant	274.00	
Perth Plus 75-10m plus 6m/2m mobile ant ..	289.00	
OB-M 300w PEP 6' 75/40/20/17/10m/HF marine .	399.00	
OB-360 Tnk lip mt/spring; Perth/JR8/Perth Plus	89.00	
OB-SB ¾-24 spring and ½" hole base	89.00	
Diamond **K-400-3/8C** ¾-24 trunk mt, 6' coax	69.95	
Diamond **C-110** 10' ext cable; K-400-3/8C .	14.95	

Palomar Engineers (PAL)

FER-2 RF ferrite toroid kit	$ 18.00	
LA-1 Loop amplifier; matches loop to Rcvr	99.95	
5-15 MHz plug-in loop (HF-1)	89.95	
1.6-5 MHz plug-in loop (160m, 80m)	89.95	
.55-1.6 MHz plug-in loop (AM broadcast)	89.95	
150-550 KHz plug-in loop (LF, 1750m)	89.95	
40-150 KHz plug-in loop (WWVB, Loran)	89.95	
10-40 KHz plug-in loop (Omega) .....Δf	89.95	49.95
M-840 Bar graph HF auto SWR/power meter ..	199.95	189.95
PS-95 AC adapter for M-835/840	15.00	
MDB-2 Magnetic dipole receiving balun	39.95	
MLB-1 Magnetic longwire receiving balun	39.95	
MSB-3 Magnetic switch receiving balun	135.00	129.95
P-405 1.8-54MHz 20db 9v Rcv preamp .Dmwv	149.95	79.95
P-408 1.8-54MHz 20db AC Rcvr preamp ..Dwfc	159.95	109.95
P-412X 160-6m 20db mob Xcv pre .....Dwfcv	179.95	149.95
P-508 .2-30MHz 12v active Rcvr preamp	99.95	
PCM-1 1-30MHz RF current meter	125.00	119.95
PF-300 SC audio filter .....Dfv	159.95	109.95
PK-200 Jones dual-paddle key	170.00	159.95
PK-200B Brass Jones dual-paddle key	190.00	179.95
PK-203 Brass Jones single lever key	195.00	174.95
PK-205 Jones straight key	150.00	139.95
PT-340 Tuner-Tuner (use with ant tuner)	99.95	
RFI-3 RF interference kit	18.00	
RX-100 1-100 MHz RX noise bridge	79.95	
SMB-5 SmartBridge prog for AT computers	29.95	
SB-4 2kw 1.7-30 MHz 4:1 balun w/SO-239 ...	79.95	
VLF-A VLF converter; 10-500 KHz to 80m	79.95	
VLF-S VLF conv; 10-500 KHz to 4-4.5 MHz	79.95	

PANASONIC (PAN)

RF-B45 Compact FM/LW/MW/SW port Rcvr	$199.95	169.95

PAR (PAR)

VHFDN152 Dual band notch filter	$ 62.00
VHFDN152HT Dual band notch filter for HT ...	68.00

PENETROX (PEN)

Penetrox A 4 oz tube for antennas	$ 7.95

PERCON (PEC)

Spectrum FCC database CDROM	$ 29.95

PERIPHEX (PER)

BP-3 8.4v 350ma battery for Icom	$ 39.00	
BP-7S 13.2v 1200ma battery for Icom	65.00	
BP-8 8.4v 1400ma battery for Icom	75.00	
BP-8S 9.6v 1400ma battery for Icom	65.00	
BP-83S 7.2v 800ma battery for Icom	43.50	
BP-84S 7.2v 1400ma battery for Icom .....†	63.00	40.00
BP-85S 12v 800ma battery for Icom	76.00	
BP-114S 12v 800ma battery for Icom	79.00	
BP-132 12v 600ma battery for Icom	54.00	
BP-132A 12v 600ma battery for Icom	54.00	
SAT Internal 7.2v 300ma int batt; IC-2SAT ...	25.00	
BP-3 Insert 8.4v 270ma insert; Icom BP-3 ...	18.95	
CNB-152 12v 600ma battery for Standard	58.50	
CNB-153 7.2v 1100ma battery for Standard ..	54.50	
EBP-22S 12v 800ma battery for Alinco	65.00	
EBP-24S 7.2v 1500ma battery for Alinco ....†	62.00	40.00
FNB-11 12v 800ma battery for Yaesu	58.50	
FNB-12 12v 600ma battery for Yaesu .....†	54.50	40.00
FNB-14 7.2v 1100ma battery for Yaesu	47.75	
FNB-14S 7.2v 1400ma battery for Yaesu	59.75	
FNB-26 7.2v 1100ma battery for Yaesu	60.00	
FNB-26S 7.2v 1400ma battery for Yaesu	65.00	
FNB-27 12v 600ma battery for Yaesu	60.00	
FNB-27S 12v 800ma battery for Yaesu	65.00	

PERIPHEX - continued

	Reg	Sale
FNB-33 4.8v 1400ma battery for Yaesu	53.25	
FNB-35 7.2v 600ma battery for Yaesu	49.00	
FNB-38 9.6v 650ma battery for Yaesu	66.90	
PB-1 12v 1000ma battery for Kenwood	64.00	
PB-7S 7.2v 1400ma battery for Kenwood	59.00	
PB-8S 12v 800ma battery for Kenwood	59.00	
PB-13S 7.2v 1200ma battery for Kenwood ..†	49.75	40.00
PB-14S 12v 400ma battery for Kenwood	60.00	
PB-17 12v 800ma battery for Kenwood	49.95	
PB-18 7.2v 1400ma battery for Kenwood	49.25	
PB-25S/26S 8.4v 1400ma battery; Kenwood .	65.00	
PB-33 6v 1200ma battery for Kenwood	49.00	
PB-34 9.6v 600ma battery for Kenwood	54.00	
Santec ST-142 9.6v 600ma battery; ST-142 ..	23.95	

PHILIPS (PHI)

U-105 Light duty rotor	$ 69.95	
TB-105 Thrust bearing	18.25	

PICQUIC (PIC)

88101 Full size 6-in-1 screwdriver set .....Δv	$ 16.95	4.95
91102 Stubby 6-in-1 screwdriver set .....Δv	12.95	3.95

PIPO TOUCH-TONE PADS (PIP)

PK-1 12-digit pad .....m	$ 71.00	
PK-1K 12-digit pad w/delay relay .....m	78.00	
PK-1M 12-digit pad for surface mtg .....m	71.00	
PK-2 16-digit pad .....m	76.00	
PK-2K 16-digit pad w/delay relay .....m	83.00	
PK-2M 16-digit pad for surface mtg .....m	76.00	
P-7V 12-digit vertical rugged mini pad .....m	58.00	

POLYPHASER (PLY)

LIGHTNING PROTECTION

IS-50NX-C2 125-1000 375/125/50w N flange	$ 52.95	
IS-50UX-C0 1.5-400 2kw/375/125w flange mt	52.95	
IS-50UX-C1 50-700MHz 375/125w flange mt.	52.95	
IS-B50LN-C2 125-1000 375/125/50w N bulkhead	59.95	
IS-B50LU-C0 1.5-400 2kw/375/125w bulkhead	59.95	
IS-B50LU-C1 50-700MHz 375/125w bulkhead mt	59.95	
IS-PLDO-120-15A 120v 15A power protector	143.95	
IS-PLDO-120-20A 120v 20A power protector	179.95	
IS-RCT 8-wire rotor control protector	46.95	
J-1 1½" to 1⅓" bronze transition clamp	7.95	
J-2 1½" to 2¼" bronze transition clamp	9.95	
IS-SPTL Single phone line protector	57.95	
1.5" STRAP 1½" copper strap ....linear ft.,Dmv	.95	
3" STRAP 3" copper strap .....linear ft.,Dmwv	2.75	
6" STRAP 6" copper strap .....linear ft.,Dmv	3.95	
CS112-25 25' 1½" copper strap	23.95	
CS112-50 50' 1½" copper strap	47.95	
CS112-75 75' 1½" copper strap	70.95	
CS112-100 100' 1½" copper strap	93.95	
CS3-25 25' 3" copper strap	47.95	
CS3-50 50' 3" copper strap	93.95	
CS3-75 75' 3" copper strap	140.95	
CS3-100 100' 3" copper strap	184.95	
CS6-25 25' 6" copper strap	93.95	
CS6-50 50' 6" copper strap	184.95	
CS6-75 75' 6" copper strap	279.95	
CS6-100 100' 6" copper strap	365.95	
CU-SPGP Copper single point ground panel ..	54.95	
TK-2 1½" strap to Rohn twr corrosion free clamp	3.95	
TK-3 1½" strap-2¼" to 3¾" mast corr free clamp	6.95	
1C-112S #6-#1 wire to 1½" strap clamp bond	8.95	
20C-112S #2-0 to #4-0 wire to 1½" strap clamp bond	10.95	
58R-112S 1½" strap to ⅝" gnd rod clamp bond	10.95	
MSC-3 Junc; 2+ 1½" or 3" strap clamp bond	8.95	
UNI-KIT 2CT Gnd kit; coax to alum/tin/galv ...	29.95	
UNI-KIT 2TC Gnd kit; galv twr leg to copper ..	29.95	
UNI-KIT 2CC Ground kit; coax to copper	28.95	
UNI-KIT 2TT Ground kit; galv/alum to galv	30.95	
CCK Copper cleaning kit; 4 oz can, brush	25.95	
GLEP Lightning and EMP Protection book	22.95	

PREMIER (ANL also see ADI)

A-200 2m/440 4.5/7.2db 6' base antenna	$ 99.95	89.95
A-300 2m/440 6.8/9.3db 11.5' base ant	149.95	129.95

PREMIER - continued

	Reg	Sale
A-1000 2m/440 8.5/11.8db 17.5' base ant	199.95	169.95
AL-800 2m/440 BNC rubber duck antenna	39.90	
RD-8 2m/440 6.5" BNC whip	19.95	
RD-78 2m/440 15" BNC whip	26.90	
S-1 2m/440 2.15/3.2db 14" whip .....Dm	27.90	
CM-1 Clip mt w/angle adjust BNC, coax ....Dm	19.95	
CM-2 Clip mt w/BNC, coax .....Dmwf	17.95	
WA-1 Window/sun roof clip mt/BNC/cbl ..Dmv	23.95	
AT-2A/Plus 2m/220 4.1/4.8 NMO mt mob Dmf	59.95	
AT-3 2m/440 2.15/3db 19" UHF mt mob ....Df	29.95	
AT-4/UHF 2m/440 3/5.5db 38" UHF mt .....Dmf	47.95	34.95
PNC-2 2m/440 3/5.5db 28" broadband mob .	43.95	
PNC-4 2m/440 3/5.5db 40" fold-over mobile	43.95	
MC-1/NMO NMO-style mag mt/coax .....Dwf	28.95	
MC-1/UHF UHF-style mag mt w/coax Dmwf	28.95	
MC-2 Super suction & mag mt; NMO/UHF ..	37.95	
TA-1/NMO NMO-style trunk mt/coax .Dmwfv	28.95	
TA-1/UHF UHF-style trunk mt/coax ....Dmwv	28.95	
TA-2 Hvy duty rubber coated tnk lip mt; NMO/UHF	34.95	
DX-2 2m/440 450/300w dplxr/UHF .....Dmwfv	43.95	
DX-2/Lead 2m/440 450/300w dplxr/lead .Dmwfv	46.95	
DX-2MN 2m/440 450/300w dplxr/Nn . Dmwfv	43.95	
DX-2MNL 2m/440 450/300w dplx/lead/N Dmwfv	46.95	
MT-1 2m/440 15/60w SWR/pwr meter Dmwfv	49.95	
SB-752 12vdc 6.5A port batt power pack	59.95	
SB-791 5A ps w/cig outlet; not for radio ..Dm	29.95	9.95
TX-3 2m/440/900-1.2 800/800/200w tripkr Dmwfv	54.95	

PRO AM by VALOR (VAL)

VHF/UHF ANTENNAS ONLY (No Mounts)

M0144-440 2m/440 antenna	$ 21.90	19.95
PAQA 136-515 MHz ¼ wave antenna	8.00	
PAQ-144 2m ¼ wave antenna	8.00	
PAQ-435 440 ¼ wave antenna	8.00	
PAQ-3820 2m ¼ wave whip w/⅜-24 thread	8.00	
PHB-144 2m ⅝ wave 3 db antenna	31.80	24.95
PHB-220 220 ⅝ wave 3 db antenna .....Δmwf	31.80	6.95
PUB-440 440 5 db antenna	39.80	29.95

MOUNTS ONLY FOR ABOVE ANTENNAS

PAM Low profile magnet mount w/coax	$ 28.40	24.95
PAMB Black low profile mag mount w/coax	28.40	24.95
PAS ¾" surface mount w/coax	20.00	16.95
PASMO ¾" surface mt only (no coax)	7.90	
PAS38 ⅜" surface mount w/coax	20.00	14.95
PAS38MO ⅜" surface mt only (no coax)	7.90	
PAT-2 No hole trunk mount w/coax	27.90	22.95
PAT-2B Black no hole trunk mount w/coax	27.90	22.95
PAT-3 Swivel NMO-style trunk mt w/coax	35.80	29.95

OTHER VHF/UHF ANTENNAS & MOUNTS

77BNC 2m/440 12" 0/2.1db BNC rubber duck	$ 23.90	19.95
144BNC 2m 12" ¼ wave rubber duck w/BNC .	11.00	9.95
220BNC 220 10" ¼ wave rubber duck w/BNC	11.00	9.95
450BNC 440 6½" ¼ wv rubber duck w/BNC	11.00	9.95
BNC-SC Suction cup extension; rubber ducks	22.60	14.95
WMSL-BNC Window clip for rubber ducks	42.80	29.95
82BNC Magnet mt for BNC w/coax	27.00	22.95
101ADN HD alum mirror mt w/SO-239	10.30	
301 ⅜-24 magnet mt only w/coax	25.40	19.95
401 Low profile ⅜-24 mag mt only w/coax	31.70	26.95
DAK Mt for 2 vert ants or horizontal dipole	13.80	
GM-100AD SS GM ⅜-24 mirror mt w/SO-239 .	9.60	
GM-270 2m/440 2.6/6.3db on glass antenna	59.95	39.95
TGMKD On glass replacement mtg kit	8.70	
MM-3401 Maxi-mag mt ⅜-24 kit (3-5" mags)	59.90	49.95
SS-100MOT 3-way NMO mirror mt w/coax	23.80	19.95
CX-144/CX-144B 2m ⅝ wave 3db ⅜-24 whip	17.90	14.95
CX-220 220 ⅝ wave 3 db ⅜-24 whip .....Δw	17.90	4.95
MM-270B 2m/440 mini mag mt ant w/BNC ..	56.60	39.95
PA-255 8' 2m/440 base antenna	134.95	99.95
PAQM 144-450 MHz ¼ wave BNC mag ant	28.80	24.95
PM-144-440BN 2m/440 BNC mag mt ant	33.90	29.95
TGS 30-1200MHz on-glass scanner ant	48.20	39.95
VAA-002 144-450 MHz ¼ wave mag mt ant	23.80	19.95
VAA-002BN 144-450 MHz ¼ wv BNC mag ant	27.80	22.95
120 Sawtooth hump mt for mobile radios	7.80	
D-270 2m/440 100w duplexer	45.90	39.95
DB-240 2m/440 base station antenna	105.20	69.95

PRO AM - continued

MOBILE HF ANTENNAS (No Mounts)

AB-5 75/40/20/15/10m antenna	$119.60	89.95
PHF-160 160m 8' ⅜-24 whip	97.80	69.95
PHF-75 75m 8' ⅜-24 whip (4' coil, 4' whip) ..	29.80	24.95
PHF-40 40m 8' ⅜-24 whip (4' coil, 4' whip) ..	23.80	19.95
PHF-30 30m 8' ⅜-24 whip (4' coil, 4' whip) ..	23.80	19.95
PHF-20 20m 8' ⅜-24 whip (4' coil, 4' whip) ..	23.80	19.95
PHF-17 17m 8' ⅜-24 whip (4' coil, 4' whip) ..	23.80	19.95
PHF-15 15m 8' ⅜-24 whip (4' coil, 4' whip) ..	23.80	19.95
PHF-12 12m 8' ⅜-24 whip (4' coil, 4' whip) ..	23.80	19.95
PHF-10 10m 8' ⅜-24 whip (4' coil, 4' whip) ..	23.80	19.95
PHF-6 6m 8' ⅜-24 whip (4' coil, 4' whip)	23.80	19.95

QSL Card Holders (ART)

QSL Card Holders, pack of 3, 20 cards/holder .	$ 9.95	

RF APPLICATIONS (RFA)

P-1500 1.8-30MHz dig power/SWR	$219.95	
P-1500-P Power supply for P-1500	16.95	
P-3000 Deluxe 1.8-30MHz dig power/SWR	299.00	
P-3000-P Power supply for P-3000	12.95	

RF CONCEPTS (RFC)

144 2m FM mini-amp 2/30w amplifier	$119.95	109.95
144P 2m FM mini-amp 2/30w amp/preamp ..	129.95	119.95
VHF1-60 2m 1/60w HT amplifier	249.95	229.95
2-23 2m FM/SSB 2/30w amp/preamp	149.95	139.95
2-315 2m FM/SSB 30/150w amp/pre .....Dmf	319.95	269.95
MAX-AMP-10 2m FM/SSB 10/150w amp/preamp	349.95	319.95
MAX-AMP-45 2m FM/SSB 45/150w amp/preamp	319.95	289.95
2/70 2m/440 FM 3/30//5/20w HT amp	259.95	239.95
2/70G 2m/440 FM 3/30//5/20w HT amp/preamp .	289.95	259.95
3-22 220 FM/SSB 2/20w amp/preamp	149.95	139.95
3-211 220 FM/SSB 2/110w amp/preamp	349.95	319.95
3-112 220 FM/SSB 10/120w amp/preamp	349.95	319.95
3-312 220 FM/SSB 30/120w amp/preamp	329.95	299.95
440 440 FM mini-amp 3/20w amplifier	129.95	119.95
440P 440 FM mini-amp 3/20w amp/preamp .	159.95	149.95
UHF-50 440 3/50w HT type N amplifier	299.95	269.95
4-32 440 FM/SSB 3/20w amp/preamp	159.95	149.95
4-110 440 FM/SSB 10/100w N amp/preamp .	399.95	359.95
4-310 440 FM/SSB 30/100w N amp/preamp .	369.95	339.95

RF LIMITED (RFL)

HL-35NP 2m .5-5/20-35w Power Plus amp	$ 89.95	79.95
HL-35V 2m .5-5/20-35w Power Plus amp/preamp	119.95	99.95
HL-62V 2m .5-10/6-60w Power Plus amp/pre	199.95	179.95
HL-36U 440 .5-12/30w Power Plus amp	259.95	229.95

RF PARTS (See Diamond)

RF PRODUCTS (RFP)

199-416 BNC mag mt, 10' coax w/BNC	$ 17.95	
199-495 SO239 mag mt, 13' coax/PL259 Δwfv	23.95	6.95

RMS (RMS)

CN-220 1.8-225MHz 1.5kw PEP meter	$144.99	
PA-546 2m 5/45w amplifier	129.99	
W-450 140-170/430-470MHz 150w meter	69.99	

RACOM (RCO)

700 Automatic morse code identifier .....m	$ 92.00	
700-PC Programming kit .....m	30.00	

Radio Amateur Callbook (RAC)

058883 1996 North American Callbook	$ 35.00	
058875 1996 International Callbook	35.00	
059278 1996 World Radio TV Handbook	24.95	
RACD02 6/96 No. Am/Int CD-ROM Callbook	49.95	

RADIO PUBLICATIONS

087034 All About Cubical Quad Antennas	$ 13.95	
087042 Beam Antenna Handbook	13.95	
087050 All About VHF Amateur Radio	13.95	
087069 Radio Amateur Antenna Handbook	13.95	
087077 Simple, Low Cost Wire Antennas	13.95	
087093 Interference Handbook	13.95	
087107 All About Vertical Antennas	13.95	

GORDON WEST RADIO SCHOOL

087263 Novice Voice Class	$ 5.95	
087417/GW0990 FCC Rules and Regulations	3.50	

RAMSEY (RAM)

		Reg	Sale
AA-7	Active antenna kit	$ 28.95	
AF-1	Hi-Q CW audio filter kit	34.95	
AR-1	Aircraft receiver kit	29.95	
CS-1	Crystal radio set kit	19.95	
CW-7	CMOS keyer kit	24.95	
DF-1	Foxhound direction finder kit	59.95	
DN-1	Nicad conditioner/fast charger kit	49.95	
FM-1	300' FM broadcast transmitter kit	5.95	
FM-4	Hi power FM broadcast transmitter kit	14.95	
FR-1	FM broadcast receiver kit	24.95	
HR-20	20m receiver kit	29.95	
HR-40	40m receiver kit	29.95	
HR-80	80m receiver kit	29.95	
PR-10	2m preamp kit	17.95	
QRP-20	20m CW transmitter kit	29.95	
QRP-40	40m CW transmitter kit	29.95	
QRP-80	80m CW transmitter kit	29.95	
RFS-1	RF sensed switch kit	14.95	
SCA-1	SCA decoder kit	27.95	
SR-1	Shortwave receiver kit	29.95	
TS-1	CW touch paddle switch kit	6.95	
UT-5	Universal timer kit	8.95	
VS-1	Voice activated switch kit	6.95	
WA-10	BNC telescopic whip antenna	12.95	

RANGER (RAN)

		Reg	Sale
RCI-2950	25w FM/SSB 10m Xcvr	$499.00	259.95
RCI-2970	100w FM/SSB 10m Xcvr	699.00	369.95
RCI-2980	25w FM/SSB 10m Xcvr w/ps	799.00	419.95
RCI-2990	100w FM/SSB 10m Xcvr w/ps	895.00	629.95

ROHN TOWERS (ROH)

		Reg	Sale
HBX-40/BXB-6	40' tower, 10 sq ft, 228 lbs *T	$469.90	399.95
HBX-48/BXB-7	48' tower, 10 sq ft, 303 lbs *T	628.60	499.95
HBX-56/BXB-8	56' tower, 10 sq ft, 385 lbs *T	789.00	629.95
HDBX-40/BXB-7	40' tower, 18 sq ft, 281 lbs *T	584.60	469.95
HDBX-48/BXB-8	48' tower, 18 sq ft, 363 lbs *T	775.00	619.95

*Drop-shipped from factory or limited stock in Milwaukee for pick-up

On factory drop-shipments we prefer payment in full with order, however, we will accept your credit card with the understanding that we will process the charge when we order the merchandise from the factory. This means that you may be billed before you receive your drop-shipped merchandise. Shipment is FOB the Rohn factory, which has various locations, via truck, COD for freight charges only. Freight charges will be collected upon delivery by the carrier. Please allow sufficient time for delivery on these drop-shipped towers. Most truck lines will not unload the tower for you, so please be sure to have enough manpower and/or equipment on hand when your tower is delivered by the carrier.

Note: Rohn states that "antennas developing a large twisting moment due to wind must not be used on HBX/HDBX-series towers. Antennas should be limited to those having a maximum boom length of 10 ft.

SS040D70RTP	40' 70mph self supporting .*T	1760.80	1199
SS050D70RTP	50' 70mph self supporting .*T	2135.80	1439
SS060D70RTP	60' 70mph self supporting .*T	3110.80	2099
SS070D70RTP	70' 70mph self supporting .*T	3485.80	2269
SS080D70RTP	80' 70mph self supporting .*T	4635.80	3119
SS090D70RTP	90' 70mph self supporting .*T	5012.70	3369

SS-series towers drop-shipped from factory only

Other Rohn Towers available on Special Order

SGC (SGC)

		Reg	Sale
04-01	SG-2000 150w 1.8-30 MHz 12v Xcvr	1995.00	1479
04-01/54-12	SG-2000/SG-230 package	2590.00	1799
04-10	SG-2000 Xcvr w/PowerTalk head	2895.00	2399
04-12	Remote kit w/swivel bkt & cable	200.00	179.95

APPLY FOR YOUR AES CREDIT CARD

Application Next to Order Blank

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Las Vegas Store
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SGC - continued

		Reg	Sale
04-13	Remote kit w/5-way mount & cable	350.00	319.95
04-14	Rem kit w/suction cup mt & cable	495.00	449.95
04-22	PowerTalk remote head	1095.00	929.95
51-82	Fan kit for continuous duty xmit	300.00	269.95
52-31	Waterproof military handset	375.00	339.95
52-32	Telephone handset	190.00	174.95
52-34	RS-232 interface; SG-2000 Xcvr	195.00	179.95
52-46	Mounting tray	50.00	
52-47	Shock/military mounting tray	300.00	269.95
52-51	CA-1 High voltage feed wire ..per ft.	70¢	
52-52	CA-2 RG-58 coax cable .....per ft.	90¢	
52-53	CA-230 Ant coupler cable .....per ft.	4.00	
52-54	CA-2000 Remote head cable .per ft.	4.00	
52-56	CA-4 RG-8A/U coax cable .....per ft.	1.10	
53-03	PS-35/AC 30A/45A peak HD ps	700.00	629.95
52-61	PSC/12-1 12' ps cable, 1 plug	50.00	
52-62	PSC/12-2 12' ps cable, 2 plugs	60.00	
52-63	PSC/25-1 25' ps cable, 1 plug	60.00	
52-64	PSC/25-2 25' ps cable, 2 plugs	70.00	
53-53	PS fan kit for continuous xmit	300.00	269.95
52-96	SG-500 1.8-24MHz 12v 500w PEP amp	995.00	949.95
70-07	PowerClear add-on DSP unit	395.00	359.95
54-12	SG-230 150w 1.8-30 MHz 12v auto tuner	595.00	489.95
54-61	25' extension cable	60.00	
54-62	50' extension cable	90.00	
54-63	SmartLock; tuners made after 9/1/93	59.95	
54-16	SmartPro 1.6-30 MHz 12v auto tuner	995.00	869.95
55-04	SG-103 1.8-30MHz 150w dipole .....†	450.00	195.00
55-06	SG-104 2-28 MHz 90' 1kw dipole	700.00	629.95
55-27	SG-303 1.8-30 9' mobile whip & mt	495.00	449.95
55-67	Replacement whip for SG-303	150.00	139.95
55-45	QMS Quick universal mount system	490.00	449.95
55-46	QMS-1 Quick mt system w/SG-230	1085.00	979.95
55-47	QMS-2 Quick mt sys w/SG-230/303/whip	1580.00	895.00
55-91	60' RG-58/U coax w/PL-259s	50.00	
55-92	120' RG-58/U coax w/PL-259s	70.00	
55-93	60' RG-8 coax w/PL-259s	80.00	
55-94	120' RG-8 coax w/PL-259s	120.00	
55-95	150' total extension; SG-103/104	70.00	
56-15	External ARQ/FEC system	1200.00	1069

SANGEAN (SAN)

		Reg	Sale
ATS-202	AM/FM/shortwave portable receiver	$159.00	89.95
ATS-303	AM/FM/shortwave portable receiver	119.00	79.95
ATS-818	AM/FM/shortwave portable receiver	299.00	179.95
ATS-818CS	AM/FM/SW port Rcvr w/cassette	359.00	229.95
ATS-909	AM/FM/shortwave portable receiver	389.00	299.95
DT-200V	AM/FM/VHF TV sound dig port Rcvr	79.95	69.95

SEQUOIA (SEQ)

		Reg	Sale
POCKET PC REF	Pocket PC reference book	$ 14.95	
POCKET REF	Pocket reference book	9.95	

SHURE (SHU)

		Reg	Sale
526T Series II	Dynamic amplified desk mic	$129.00	112.95
R96	Replacement cartridge	26.20	
R5F	Replacement cartridge for 404C .... Δmf	30.20	24.95

SMILEY ANTENNA (SMI)

		Reg	Sale
270A	2m/440 gain telescopic whip	$ 19.95	
5/8 SLD-2	2m ⅝ Slim Duck rubber ant	17.95	
5/8 SLD-220	220 ⅝ Slim Duck rubber ant	17.95	
5/8 SLD-440	440 ⅝ Slim Duck rubber ant	17.95	
5/8 SLD-2 Combo	2m ⅝ duck & stubby ant	24.95	
5/8 SLD-220 Combo	220 ⅝ duck & stubby ant	24.95	
5/8 SLD-440 Combo	440 ⅝ duck & stubby ant	24.95	
FLX 1/2 WAV-2M	½ wv 2m BNC whip/flex coil	25.95	
RD-2	2m rubber duck antenna	14.95	
RD-220	220 rubber duck antenna	14.95	
RDMD-2	2m mini rubber duck antenna	14.95	
RDMD-220	220 mini rubber duck antenna	14.95	
RDMD-440	440 mini rubber duck antenna	14.95	
RDS-2	2m stubby rubber duck antenna	14.95	
RDS-220	220 stubby rubber duck antenna	14.95	
RDS-440	440 stubby rubber duck antenna	14.95	
SD-2	2m Slim Duck thin rubber antenna	14.95	
SD-220	220 Slim Duck thin rubber antenna	14.95	
SL-440	440 slimline type duck	12.95	
SS-II	Super Stick 2m ⅝ wv telescopic ant	19.95	

SMILEY - continued

		Reg	Sale
SS-III	Super Stick 220 ⅝ wv telescopic ant	19.95	
SS-IV	Super Stick 440 ⅝ wv telescopic ant	19.95	
SS-II/Combo	2m ⅝ wv telescopic & stubby ant	26.95	
SS-III/Combo	220 ⅝ wv telescopic & stubby ant	26.95	
SS-IV/Combo	440 ⅝ wv telescopic & stubby ant	26.95	
TAQ-2	2m ¼ wave stainless whip	10.95	
TAQ-220	220 ¼ wave stainless whip	10.95	
TAQ-440	440 ¼ wave stainless whip	10.95	
TS	Thin Stick 2m/220 ⅝ wave telescopic whip	16.95	

SOLARCON (SOL)

		Reg	Sale
A-99	10m fiberglass base station antenna	$ 74.95	59.95
GPK-1	Ground plane radial kit	39.95	

SOLDER-IT (SLD)

		Reg	Sale
ALP-21D	Aluminum solder paste, 7.1gm	$ 6.00	
SP-7D	Solder paste, 7.1 gm	6.00	

SONY (SON)

		Reg	Sale
ICF-SW15	AM/FM/SW port receiver .....Dmv	$ 89.95	59.95
ICF-2010	AM/FM/SW/LW/air port Rcvr w/ps	449.95	359.95
ICF-SW10	AM/FM/SW compact receiver	64.95	49.95
ICF-SW30	AM/FM/SW portable receiver	139.95	99.95
ICF-SW33	AM/FM/SW port receiver .....Dmwfv	199.95	169.95
ICF-SW40	AM/FM/SW portable receiver	169.95	139.95
ICF-SW55	AM/FM/SW portable receiver	449.95	349.95
ICF-SW77	AM/FM/SW portable receiver	649.95	469.95
ICF-SW100S	AM/FM/SW portable receiver	479.95	349.95
ICF-SW1000T	AM/FM/SW port Rcvr w/cassette	699.95	569.95
ICF-SW7600G	AM/FM/SW portable receiver	239.95	199.95
AC-E60HG	6vdc 400ma AC adapter	22.99	
AN-1	LW/MW/SW outdoor active rcv ant	119.95	99.95
AN-3	Aircraft active receive antenna	99.95	89.95
AN-102	LW/MW/SW indoor active rcv ant	89.95	79.95
FDT-5BX5	5" color AC/DC television .....m		269.95

Following are SONY Consumer Products from our Audio Plus Division. Please call them direct to order.
1-800- 462-9489 • 414-235-8934
& see AUDIO PLUS p.p.181 to 183

MINI DISC

		Reg	Sale
MZ-E3	Player only	$349.99	249.99
MZ-R3	Player/recorder	649.99	529.99

DISCMAN

		Reg	Sale
D-143	Mega bass, nicads	$129.99	87.99
D-242CK	Car discman	169.99	139.99
D-848K	Super ESP w/wireless remote	349.99	259.99

AM/FM WALKMAN

		Reg	Sale
SRFM-33	Digital w/presets	$ 39.99	34.99
SRF-36	FM only	19.99	12.99

AM/FM CASSETTE WALKMAN

		Reg	Sale
WMFX-407	Dig/presets/auto rev/Dolby/mega bass	$ 89.99	69.99
WMFX-507	Super Walkman! Dig/auto rev/Dolby	179.99	139.99

SPORTS WALKMAN

		Reg	Sale
SRF-85	AM/FM only	$ 49.99	34.99
SRFM-70	Digital tuner w/10 presets	64.99	49.99
WMFS-395	Top of the line! Dig/Dolby/water res	99.99	89.99

PORTABLES

		Reg	Sale
CFD-8	AM/FM, CD, cassette	$129.99	99.99
CFD-610	Dig w/remote/6 disc CD changer/hi pwr	349.99	269.99
CFD-616	6 disc changer w/remote & AM/FM	329.99	269.99
CFD-768	1 bit CD, dig, autoreverse, rem, 20w	389.99	299.99

MICRO CASSETTES

		Reg	Sale
M-425	Pressman micro recorder	$ 32.99	27.99
M-727V	VOR w/tape counter	69.99	56.99

ANSWERING MACHINE

		Reg	Sale
TAM-2000	Digital w/voice time & date stamp	$129.99	89.99

CORDLESS PHONES

		Reg	Sale
SPPQ-210	25ch w/page & dual battery system	$ 149.99	109.99
SPPER-1	900MHz, enhanced reception	229.99	179.99

SOUTH RIVER (UPS OK) (SOU)

		Reg	Sale
HDT-3E-PPK	3' boxed tripod .....Δm	$ 19.95	
HDT-5E-PPK	5' boxed tripod .....Δmw	29.95	

STANDARD (STA)

	Reg	Sale
C-178A 2m/440 FM HT/batt/cgr/TTP/CTCSS	$459.00	399.95
FREE CMP-115 from Standard - C-178A thru 9/30/96		
C-228A 2m/220 FM HT/batt/cgr/TTP/CTCSS	695.00	599.95
$30 coupon - C-228A thru 9/30/96 OR		
FREE CMP-115 from Standard - C-228A thru 9/30/96		
C-528A 2m/440 FM HT/batt/cgr/TTP/CTCSS	495.00	439.95
$25 coupon - C-528A thru 9/30/96 OR		
FREE CMP-115 from Standard - C-528A thru 9/30/96		
C-558A 2m/440 FM HT/batt/cgr/TTP/CTCSS	665.00	549.95
$30 coupon - C-558A thru 9/30/96 OR		
FREE CMP-115 from Standard - C-558A thru 9/30/96		
C-568A 2m/440/1.2 FM HT/batt/cgr/TTP/CTCSS	699.00	599.95
C-628A 440/1.2 FM HT/batt/cgr/TTP/CTCSS	727.00	669.95
CAX-02 Bottom cover	12.50	
CAX-03 Bottom cover	12.50	
CAW-150 Mobile power supply cable	18.00	
CAW-151 12vdc power supply cable	14.50	
CAW-152 Cig cord w/filter	30.50	
CBT-151 Battery case	22.00	
CBT-171 6 cell battery case	21.00	
CBT-175 2 cell battery case	17.00	
CHP-111 Headset mic w/PTT switch	48.00	
CHP-150 Headset mic w/VOX	87.50	
CMB-600 Helmet clip for CHP-150	14.50	
CLC-151 Reg case; C-158A/CNB-151 ...Δm	25.00	
CLC-152 Lrg case; C158A/CNB152/153 Δm	26.00	
CLC-171 Soft case for CNB-171	30.00	
CLC-172 Soft case for CNB-172/173	30.00	
CLC-175 Soft case for CBT-175	30.00	
CLC-520 Std carrying case; 228A/528A	26.00	
CLC-521 Large carrying case; 228A/528A	29.00	
CLC-550 Standard carrying case; 558A	29.00	
CLC-551 Large carrying case; 558A	31.00	
CLC-555GN Green carrying case ...Δf	35.00	24.95
CLC-5550R Orange carrying case	35.00	
CLC-560 Case; CBT-171/CNB-171; C-568A	27.00	
CLC-561 Case; CNB-172/173 with C-568A	27.00	
CLC-562 Leather case; CBT-171/CNB-171	52.00	
CMB-111 Mobile bracket	22.00	
CMB-112 Mounting bracket	27.50	
CMC-150 Mobile charger	28.00	
CMP-111 Speaker/mic	58.00	
CMP-113 Tie-pin spkr/mic	48.00	
CMP-115 Mini speaker/mic	53.00	
CMU-160 40 ch mem; 558A/168A ...Δmwfv	33.00	9.95
CMU-161 200 channel memory	48.00	
CNB-151 Extra 7.2v 700ma nicad batt	82.00	
CNB-152 12v 600ma nicad battery	99.00	
CNB-153 7.2v 1000ma nicad battery	99.00	
CNB-171 7.2v 700ma nicad battery	80.00	
CNB-172 12v 600ma nicad battery	127.00	119.95
CNB-173 7.2v 1100ma nicad battery	99.00	94.95
CSA-181A Desk rapid charger	128.00	119.95
C-168A Dlx sub-mini 2m FM HT/batt/cgr/TTP	469.00	314.95
C-468A Dlx sub-mini 440 FM HT/batt/cgr/TTP	480.00	339.95
FREE CMP-115 from Standard - C-468A thru 9/30/96		
CAX-03 Bottom cover	12.50	
CAX-160 Remote battery adapter .....Δmwf	52.00	14.95
CBT-160 Battery case	21.00	
CHP-111 Headset mic w/PTT switch	48.00	
CHP-150 Headset mic w/VOX	87.50	
CLC-160 Mini carrying case	26.50	
CLC-161 Mini carrying case	27.50	
CLC-162 Mini carrying case	28.00	
CMP-111 Speaker/mic	58.00	
CMP-113 Tie-pin spkr/mic	48.00	
CMP-115 Mini speaker/mic	53.00	
CMP-123 Ear phone spkr/mic	63.00	
CMU-161 200 channel memory	48.00	
CNB-160 Mini 6v 300ma nicad batt Δmwfv	72.00	34.95
CNB-161 Mini 7.2v 700ma nicad battery	78.00	
CNB-162 Mini 12v 600ma nicad battery	130.00	119.95
CNB-163 Mini 7.2v 1000ma nicad batt	95.00	
CSA-181A Desk rapid charger	128.00	119.95
C-188A Thin sub-mini 2m HT/TTP .....Δfv	395.00	279.95
$25 coupon - C-188A thru 9/30/96 OR		
FREE CMP-115 from Standard - C-188A thru 9/30/96		

STANDARD - continued

	Reg	Sale
C-288A Thin sub-mini 220 HT/batt/cgr/TTP	449.00	369.95
CBT-181 Battery case for 4 AA	18.00	
CBT-182 Battery case for 5 AA	28.00	
CHP-111 Headset mic w/PTT switch	48.00	
CHP-150 Headset mic w/VOX	87.50	
CLC-181 Carrying case w/CNB-181	23.00	
CLC-182 Carrying case w/CNB-182/3/4	25.00	
CMA-181 Mobile adapter	42.00	
CMP-111 Speaker/mic	58.00	
CMP-113 Tie-pin spkr/mic	48.00	
CMP-115 Mini speaker/mic	53.00	
CMP-123 Ear phone spkr/mic	63.00	
CMU-182 200 ch memory for C-188A/288A	48.00	
CNB-181 4.8v 700ma nicad battery	59.00	
CNB-182 9.6v 600ma nicad battery	115.00	104.95
CNB-183 6v 1100ma nicad battery	97.00	92.95
CNB-184 6v 700ma nicad battery	69.00	
CSA-181A Desk rapid charger	128.00	119.95
C-108A 200mw 2m FM HT	269.00	224.95
$20 coupon - C-108A thru 9/30/96 OR		
FREE CMP-115 from Standard - C-108A thru 9/30/96		
C-508A 280mw 2m/440 FM HT	345.00	284.95
CBH-160 Molded belt clip	12.50	
CHP-111 Headset mic w/PTT switch	48.00	
CHP-150 Headset mic w/VOX	87.50	
CLC-401 Standard soft case; C-108A	16.00	
CLC-402 Dlx soft case w/belt loop; C-108A	23.00	
CLC-502 Standard soft case; C-508A	18.00	
CLC-503 Deluxe soft case; C-108A/508A	19.00	
CMP-111 Speaker/mic	58.00	
CMP-113 Tie-pin spkr/mic	48.00	
CMP-115 Mini speaker/mic	53.00	
CMP-123 Ear phone spkr/mic	63.00	
CNB-401 Nicad battery	22.00	
CSA-401A Desk charger	48.00	
C-1208DA 50w 2m FM Xcvr w/TTP	549.00	479.95
CAW-561 6.5' mic extension cable	36.00	
CAW-562 13' mic extension cable	48.00	
C-5718DA 50/40w 2m/440 FM Xcvr/packet	849.00	719.95
CAW-570 Split cable for microphone	63.00	
CAW-571 6.5' mic extension cable	49.00	
CAW-572 13' mic extension cable	54.00	
CAW-579 Packet cable	32.00	
CRC-5700 Front panel w/freq display	239.00	219.95
CAW-573 6.5' front panel extension cable	28.00	
CAW-574 13' front panel extension cable	39.00	
C-5900DA 45w 6m/50w 2m/35w 440 FM/TTP	1049.00	889.95
CAW-590 Split cable for mic	55.00	
CAW-591 10' extension cable; LCD display	40.00	
CAW-592 16' extension cable; mic/speaker	57.00	
CAW-593 26' extension cable; mic/speaker	74.00	
CMB-5900 Mounting bracket for display	27.00	
CMU-161 200 channel memory	48.00	
CSK-12 External speaker	47.00	
CCR-708A 50-905MHz spectral disp Rcvr/cell blkd	750.00	

STARTEK (STR)

1350 1-1300 MHz frequency counter	$129.00	119.95
ATH-10 1-1200 MHz freq counter w/ATH	159.00	139.95
ATH-15 1-1500MHz bar graph freq counter	235.00	179.95
ATH-15/OS 1-1500Mhz ctr w/1-shot opt ....Δm	275.00	199.95
ATH-15/OS/HS 1500MHz/1-shot/hi stab .....m	335.00	279.95
ATH-30 1-2800MHz bar graph ctr w/1-shot	299.00	239.95
ATH-30/HS 2800MHz/1-shot/hi-stability	399.00	339.95
ATH-50 5Hz-2800MHz bar/auto trig/hi speed	339.00	289.95
ATH-50/HS 2800MHzr/trig/hi spd/hi stability	439.00	389.95
APA-9/VPA-9 9vdc auto power adapter	6.00	
BP-150 130 - 500 MHz bandpass filter	49.00	
CC-90 Carrying case	12.00	
DC-5 BNC to clip leads cable	12.00	
DC-10 Direct probe	22.00	
HP-400 400 - 1500 MHz bandpass filter	49.00	
HP-800 800 MHz - 2 GHz bandpass filter	49.00	
LP-22 Lo-pass probe	29.00	
LP-60 DC - 60 MHz bandpass filter	49.00	
M-207-IC Interface cable	10.00	
P-110 200 MHz X1-X10 probe	69.00	39.95
RD-2750 27-50MHz rubber duck antenna	19.00	
RD-150 150MHz rubber duck antenna	16.00	

STARTEK - continued

	Reg	Sale
RD-450 450MHz rubber duck antenna	16.00	
RD-800 800MHz rubber duck antenna	16.00	
TA-90 Telescopic antenna	12.00	
TA-90L Right angle telescopic antenna	16.00	

SWIECH (SWE)

COY2M3EL 3 element 2m beam .....m	$ 64.95	

TAB Books (TAB)

447748 Shortwave Listener's Q & A Book	$ 12.95	
633626 Radio Amateur's Digital Comm Handbook	14.95	
640967 Amateur Radio Encyclopedia	29.95	
641351 Shortwave Radio Listening for Beginners	12.95	
643478 Complete SW Listener's Handbook	19.95	
643540 Beginner's Handbook of Amateur Radio	22.95	
765340 Build Your Own Shortwave Antennas	16.95	

TIMEWAVE (TIM)

AT-1 150w 160-10m automatic ant tuner	$359.95	349.95
DSP-9 Digital signal processing unit	169.00	
DSP-9 PLUS Advanced dig sig processing unit	209.00	199.95
DSP-59 PLUS Dlx dig signal processing unit	269.00	259.95
DSP-599zx All-mode DSP noise filter	349.00	339.95
Upgrade 3.0 DSP-9 to ver 3.0 upgrade kit ..m	30.00	

TRIPP LITE (TRI)

PR-7 5A power supply, 7A surge	$ 55.00	47.95
PR-10 7.5A power supply, 10A surge	79.00	63.95
PR-12 9A power supply, 12A surge	85.00	68.95
PR-20 16A power supply, 20A surge	125.00	94.95
PR-30 24A power supply, 30A surge	172.00	129.95
PR-40 32A power supply, 40A surge	211.00	166.95
PR-50 37A power supply, 50A surge	262.00	199.95
PR-60 48A power supply, 60A surge	309.00	237.95
TL-11 Trim Line small low prof 8A ps, 11A surge	85.00	69.95
TLC-11 Trim Line lg low prof 8A ps, 11A surge	97.00	79.95
BC PERS-280 Standby UPS 280VA, 2 outlets	129.00	119.95
BC PERS-420 Standby UPS 420VA, 2 outlets	175.00	159.95
BC INTERNET-325 Stdby UPS 325VA, net protect	165.00	149.95
BC INTERNET-450 Stdby UPS 450VA, net protect	199.00	179.95
BC INTERNET-675 Stdby UPS 675VA, net protect	299.00	269.95
IBAR-12 Rack mt 12 outlet surge suppressor	149.00	99.95
ISOBAR-4 4 outlet premium surge suppressor	79.95	49.95
ISOBAR-6 6 outlet premium surge suppressor	99.95	59.95
ISOBAR-8 ULTRA 8 outlet surge suppressor/LEDs	116.95	79.95
MT-6+ 6 outlet console surge suppressor	149.95	99.95
SUPER-7 7 outlet surge suppressor	27.95	23.95
SUPER-7+TEL 7 outlet/fax modem surge	38.50	29.95
TR-6 Surge Alert 6 outlet super suppressor	59.95	46.95
TR-6FM Surge Alert+Tel 6 out super suppressor	69.95	54.95

TUBES (TUB)

6146B Tube .....each	$ 14.95	
12BY7A Tube .....each	12.95	
3-500G High dissipation tube (3-500Z)..each	109.95	
572B For Yaesu, etc. .....each	49.95	
811A For Collins, etc. .....each	14.95	

Also see EIMAC

TUNE BELT (TUN)

HH-1PS Up to 5" HT radio belt	$ 19.95	
HH-1PM Up to 6" HT radio belt	19.95	
HH-1PL Up to 7" HT radio belt	19.95	
HH-2PM Up to 6" HT radio belt w/batt pocket	21.95	
HH-2PL Up to 8" HT radio belt w/batt pocket	21.95	

US TOWER (UST)

FREE STANDING CRANK-UPS (T²X not recommended)

TX-438 38' crank-up tower .....T	1133.00	1019
TX-455 55' crank-up tower .....T	1710.00	1499
TX-472 72' crank-up tower .....T	2810.00	2529

TOP TRADES

for late model SSB & FM gear

Upgrade Now – Call for our Quote Today!

US TOWER - continued

		Reg	Sale
TX-472MDP	72' crank-up w/motor drive .....T	4521.00	4068
TX-489	89' crank-up tower .....T	4888.00	4399
TX-489MDPL	89' crank-up w/motor drive ....T	7332.00	6598

FREE STANDING HEAVY DUTY CRANK-UP TOWERS

HDX-538	38' crank-up tower .....T	1466.00	1319
HDX-555	55' crank-up tower .....T	2566.00	2309
HDX-572	72' crank-up tower .....T	4399.00	3959
HDX-572MDPL	72' crank-up w/motor drive .T	6721.00	6048
HDX-589MDPL	89' crank-up w/motor drive .T	8799.00	7919
HDX-689MDPL	89' HD crank-up w/motor .....T	16999.00	15299
HDX-5106MDPL	106' HD crank-up w/motor .T	18499.00	16649

COMPACT TMM (Top mount rotor for full retraction)

TMM-433SS	33' crank-up tower .....T	1210.00	1089
TMM-433HD	33' HD crank-up tower .....T	1466.00	1319
TMM-541SS	41' crank-up tower .....T	1588.00	1429

ACCESSORIES FOR CRANK-UP TOWERS

CX-2	Coax arms (2) for 2-section tower	$ 49.00	
CX-3	Coax arms (3) for 3-section tower	69.00	
CX-4	Coax arms (4) for 4-section tower	109.00	
CX-5	Coax arms (5) for 5-section tower	149.00	134
CX-6	Coax arms (6) for 6-section tower	189.00	170
HDP	Service platform .....T	739.00	665
STS-4	Rotor accessory for TX/TMM towers ...T	210.00	189
IV-16	Inverted vee arm for MA's	37.00	
M-5	2" OD 5' mast extension for MA's	36.00	
M-10	2" OD 10' mast .....T	69.00	
M-15	2" OD 15' mast .....T	103.00	
M-20	2" OD 20' mast .....T	136.00	122
M-15R	2" OD 15' reinforced mast .....T	155.00	140
M-20R	2" OD 20' reinforced mast .....T	205.00	184
CM-20	2" OD 20' .375 wall mast .....T	449.00	404
MD-75	Heavy duty 1 HP motor drive .....T	989.00	890
MDP-750	Pull-down drive; TX-472/HDX-555 T	1539.00	1385
MDPL-1000	Pull-down drive; HDX-572 .....T	2089.00	1880
MRF	Mast raising fixture	266.00	239
MCL-100	Limit switch package	432.00	388
RMC-1000	Remote control w/limit switch	989.00	890
RP-3	Rotor plate for 10" section	20.00	
RP-4	Rotor plate for 12½" section	26.00	
RP-5	Rotor plate for 15" section	32.00	
TRX-80	Raising fixture; TX-438/455;HDX-538/555 ..T	431.00	387
TRX-80HD	Raising fixture;TX-472/489;HDX-572/589 ...T	567.00	510
TRX-100HD	Raising fixture; HDX-689/5106 .T	799.00	719
TB-2US	Thrust bearing; 2" mast w/2 flange holes	98.00	

MA-SERIES TUBULAR TOWERS

MA-40	40' crank-up mast .....†T	$899.00	679
MA-550	55' crank-up mast .....†T	1521.00	1069
MA-550MDP	55' crank-up mast w/motor .....T	2909.00	2618
MA-770	70' crank-up mast .....T	2509.00	2258
MA-770MDP	70' crank up mast w/motor .....T	3969.00	3572
MA-850MDP	85' crank-up mast w/motor .....T	5349.00	4814

MA-SERIES ACCESSORIES

CX-2M	Coax arms (2) for MA-40	$ 53.00	
CX-3M	Coax arms (3) for MA-550	79.00	
CX-4M	Coax arms (4) for MA-770	132.00	119

US TOWER - continued

		Reg	Sale
CX-5M	Coax arms (5) for MA-850	159.00	143
MAB-40	Hinged base for MA-40 .....T	359.00	323
MAB-550	Hinged base for MA-550 .....T	429.00	386
MAB-770	Hinged base for MA-770 .....T	519.00	467
MAB-850	Hinged base for MA-850 .....T	629.00	566
MAF-40	Raising fixture for MA-40	220.00	198
MAF-550	Raising fixture for MA-550 .....T	304.00	273
MAF-770	Raising fixture for MA-770 .....T	309.00	278
MAF-850	Raising fixture for MA-850 .....T	409.00	368
MARB-40	Rotor base accessory for MA-40 ...T	549.00	494
MARB-550	Rotor base accessory for MA-550 T	649.00	584
MARB-770	Rotor base accessory for MA-770 T	769.00	692
MARB-850	Rotor base accessory for MA-850 T	909.00	818

All US TOWER products are drop-shipped (shipped direct to you from the US TOWER factory). On these factory drop-shipments we prefer payment in full with order, however, we will accept your credit card with the understanding that we will process the charge when we order the merchandise from the factory. This means that you may be billed before you receive your drop-shipped merchandise. Shipment is FOB Visalia, California via truck, COD for freight charges only. Freight charges will be collected upon delivery by the carrier. Please allow sufficient time for delivery on these special order products. Most truck lines will not unload the tower for you, so please be sure to have enough manpower and/or equipment on hand when your tower is delivered by the carrier.

UNADILLA (See W2AU)

UNIDEN (UNI)

HR-2510	25w 10m FM/SSB Xcvr .....Dmwfv	$459.95	229.95

Unified Microsystems (UNM)

W9XT	Contest card for IBM PC & compatible	$149.95	139.95

Universal Towers (UNT)

4-30	4 sq ft wind load 30' alum tower .....T	$335.00	302
9-30	9 sq ft wind load 30' alum tower .....T	451.00	406
12-30	12 sq ft wind load 30' alum tower .....T	593.00	534
21-30	21 sq ft wind load 30' alum tower .....T	704.00	634
23-30	23 sq ft wind load 30' alum tower .....T	932.00	839
35-30	35 sq ft wind load 30' alum tower .....T	1050.00	945
4-40	4 sq ft wind load 40' alum tower .....T	562.00	506
7-40	7 sq ft wind load 40' alum tower .....T	706.00	635
9-40	9 sq ft wind load 40' alum tower .....T	787.00	708
12-40	12 sq ft wind load 40' alum tower .....T	932.00	839
15-40	15 sq ft wind load 40' alum tower .....T	1042.00	938
21-40	21 sq ft wind load 40' alum tower .....T	1157.00	1041
23-40	23 sq ft wind load 40' alum tower .....T	1385.00	1247
4-50	4 sq ft wind load 50' alum tower .....T	792.00	713
5-50	5 sq ft wind load 50' alum tower .....T	900.00	810
7-50	7 sq ft wind load 50' alum tower .....T	1013.00	912
9-50	9 sq ft wind load 50' alum tower .....T	1126.00	1013
15-50	15 sq ft wind load 50' alum tower .....T	1496.00	1346
16-50	16 sq ft wind load 50' alum tower .....T	1614.00	1453
4-60	4 sq ft wind load 60' alum tower .....T	1127.00	1014
6-60	6 sq ft wind load 60' alum tower .....T	1382.00	1244
7-60	7 sq ft wind load 60' alum tower .....T	1471.00	1324
9-60	9 sq ft wind load 60' alum tower .....T	1577.00	1419
3-70	3 sq ft wind load 70' alum tower .....T	1469.00	1322
4-70	4 sq ft wind load 70' alum tower .....T	1805.00	1625

UNIVERSAL - continued

		Reg	Sale
6-70	6 sq ft wind load 70' alum tower .....T	1838.00	1654
7-70	7 sq ft wind load 70' alum tower .....T	1922.00	1729
3-80	3 sq ft wind load 80' alum tower .....T	1920.00	1728
4-80	4 sq ft wind load 80' alum tower .....T	2293.00	2064
2-90	2 sq ft wind load 90' alum tower .....T	2375.00	2138
B-14	Base for tower	60.58	55
B-18	Base for tower	60.58	55
B-22	Base for tower	106.04	95
B-26	Base for tower	136.33	123
RFM-14	Flat roof mt for guyed tower	42.32	38
RFM-18	Flat roof mt for guyed tower	66.69	60
RFM-22	Flat roof mt for guyed tower	99.96	90
RFM-26	Flat roof mt for guyed tower	133.33	120
R-11	Rotor mount	30.27	27
R-14	Rotor mount	45.33	41
R-18	Rotor mount	60.58	55

SEE LITERATURE FOR CONFIGURATION OF TOWERS

11 Top	11" top tower section .....T	113.66	102
14 Top	14" top tower section .....T	143.22	129
18 Top	18" top tower section .....T	259.72	234
14 Taper	14" taper tower section .....T	126.00	113
18 Taper	18" taper tower section .....T	226.00	203
22 Taper	22" taper tower section .....T	337.00	303
26 Taper	26" taper tower section .....T	453.00	408
11 Straight	11" straight tower section .....T	112.00	101
14 Straight	14" straight tower section .....T	126.00	113
18 Straight	18" straight tower section .....T	226.00	203
22 Straight	22" straight tower section .....T	337.00	303
26 Straight	26" straight tower section .....T	453.00	408
HD35-40	35 sq ft wind load 40' alum tower T	1616.00	1454
HD21-50	21 sq ft wind load 50' alum tower T	1724.00	1552
HD9-60	9 sq ft wind load 60' alum tower ....T	1808.00	1627
HD16-60	16 sq ft wind load 60' alum tower T	2178.00	1960
HD21-60	21 sq ft wind load 60' alum tower T	2295.00	2065
HD8-70	8 sq ft wind load 70' alum tower ....T	2034.00	1831
HD12-70	12 sq ft wind load 70' alum tower T	2519.00	2267
HD17-70	17 sq ft wind load 70' alum tower T	2749.00	2474
HD21-70	21 sq ft wind load 70' alum tower T	2864.00	2578
HD8-80	8 sq ft wind load 80' alum tower ....T	2603.00	2343
HD9-80	9 sq ft wind load 80' alum tower ....T	2716.00	2444
HD11-80	11 sq ft wind load 80' alum tower T	3085.00	2777
HD12-80	12 sq ft wind load 80' alum tower T	3090.00	2781
HD16-80	16 sq ft wind load 80' alum tower T	3317.00	2985
HD4-90	4 sq ft wind load 90' alum tower ....T	2710.00	2439
HD8-90	8 sq ft wind load 90' alum tower ....T	3198.00	2878
HD11-90	11 sq ft wind load 90' alum tower T	3656.00	3290
HD4-100	4 sq ft wind load 100' alum tower T	3630.00	3267
HD8-100	8 sq ft wind load 100' alum tower T	3884.00	3496
B-30	Base for HD tower	212.57	191
RFM-30	Flat roof mt for guyed tower	186.52	168
1-5/8SC	Flange bearing	90.70	81
2-3/16SC	Flange bearing	116.52	104
Top Plate	Flange plate welded to top section	21.24	19

SEE LITERATURE FOR CONFIGURATION OF TOWERS

ORDER TOLL FREE: 1-800-558-0411

AMATEUR ELECTRONIC SUPPLY® INC.

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UNIVERSAL - continued

	Reg	Sale
30 Taper 30" taper tower section .....T	570.00	513
30 Straight 30" straight tower section .....T	570.00	513
1-1/4" OD x 10 ft aluminum mast .....T	30.27	27
1-1/2" OD x 10 ft aluminum mast .....T	37.84	34
2" OD x 8 ft aluminum mast	45.41	41
2" OD x 16 ft aluminum mast .....T	90.88	82

All UNIVERSAL TOWERS products are drop-shipped (shipped direct to you from the UNIVERSAL TOWERS factory). On these factory drop-shipments we prefer payment in full with order, however, we will accept your credit card with the understanding that we will process the charge when we order the merchandise from the factory. This means that you may be billed before you receive your drop-shipped merchandise. Shipment is FOB Mt. Clemens, Michigan via truck, COD for freight charges only. Freight charges will be collected upon delivery by the carrier. Please allow sufficient time for delivery on these special order products. Most truck lines will not unload the tower for you, so please be sure to have enough manpower and/or equipment on hand when your tower is delivered by the carrier.

VALOR (See PRO AM/Vectronics)

VANCO (VCO)

SWR-1 SWR/field strength meter	$ 36.14	19.95
SWR-2 SWR/power/field strength meter	50.15	29.95
SWR-3 Mini SWR meter	21.68	14.95

VAN GORDEN (VAN)

Hi-Q 1:1 balun	$ 14.95	
Hi-Q 4:1 balun	14.95	
Antenna center insulator	6.95	
Antenna end insulator .....each	3.95	
Dog bone type antenna insulator .....each	.55	
NR-100 Nylon antenna guy rope .....100 ft.	4.49	
NR-1,000 Nylon ant guy rope .....1,000 ft.	43.95	39.95
D-80 80m wire dipole antenna	31.95	
SD-80 Short 80m dipole	35.95	
D-40 40m wire dipole antenna	28.95	
SD-40 Short 40m dipole	33.95	
D-20 20m wire dipole antenna	27.95	
D-15 15m wire dipole antenna	26.95	
D-10 10m wire dipole antenna	25.95	
All Bander Dipole 160-10m (w/tuner) 135' ant	29.95	
Shorty All Bander 160-10m (w/tuner) 70' ant	44.95	
G5RV Flat-top 5-band 102' antenna w/cable	50.00	
N connector Type N connector for 9913	4.95	
450 ohm 18ga solid ladderline .....**100** ft.	12.00	
450 ohm 18ga solid ladderline .....**1,000** ft.	110.00	99.95
RG-213 Non-contaminating .....per ft.		46¢
RG-213/500 Non-contaminating ..500 ft. Roll	199.95	179.95
8X-3ST 3' RG-8X coax/silver teflon PL259s ...	8.50	
8X-6ST 6' RG-8X coax/silver teflon PL259s ...	10.00	
8X-12ST 12' RG-8X coax/silver teflon PL259s	11.00	
8X-25ST 25' RG-8X coax/silver teflon PL259s	15.50	
8X-50ST 50' RG-8X coax/silver teflon PL259s	24.00	
8X-75ST 75' RG-8X coax/silver teflon PL259s	31.00	
8X-100ST 100' RG-8X coax/silver teflon PL259s	37.00	
213-3ST 3' RG-213 coax/silver teflon PL259s	11.00	
213-6ST 6' RG-213 coax/silver teflon PL259s .	14.00	
213-12ST 12' RG-213 coax/silver teflon PL259s	18.00	
213-25ST 25' RG-213 coax/silver teflon PL259s	25.00	
213-50ST 50' RG-213 coax/silver teflon PL259s	38.00	
213-75ST 75' RG-213 coax/silver teflon PL259s	54.00	
213-100ST 100' RG-213 coax/silver teflon PL259s	72.00	

Vectronics by VALOR (VAL)

VC-300M 300w mobile antenna tuner	$139.95	119.95
VC-300DLP 300w antenna tuner	169.95	144.95
VC-300D 300w digital antenna tuner	219.95	186.95
HFT-1500 1.5kw antenna tuner	459.95	389.95
AT-100 .3-30 MHz active antenna/tuner .....m	85.95	74.95
Vector 500 600w HF amplifier .....m	1395.00	1195
HF-600QSK 1kw HF amplifier w/QSK .....m	1995.00	1595
HPF-1 High pass filter	19.95	17.95
LP-30 1.5kw low pass filter	69.95	59.95
LP-2500 2.5kw low pass filter	139.95	119.95
CK-200 Deluxe keyer .....m	89.95	79.95
DL-300M 300w dummy load	43.95	39.95
DL-650M 1.5kw dummy load	74.95	64.95
DL-2500 2.5kw dummy load	199.95	169.95

VECTRONICS - continued

	Reg	Sale
PM-30HF 300/3kw HF wattmeter	99.95	84.95
PM-30UV 30/300w VHF/UHF wattmeter	99.95	84.95

VIBROPLEX (VIB)

090 Original Gold Bug	$299.95	289.95
100 Original Presentation Super deluxe bug .	259.95	249.95
105 Original Deluxe Bug	174.95	
110 Original Standard Bug	139.95	
113 VibroKeyer Gold Paddle	279.95	269.95
115 VibroKeyer Deluxe Paddle	169.95	
120 VibroKeyer Standard Paddle	129.95	
123 Iambic Gold Paddle	279.95	269.95
125 Iambic Presentation Paddle	249.95	239.95
130 Iambic Deluxe Paddle	169.95	
135 Iambic Standard Paddle	129.95	
140 EK-1 Iambic keyer w/paddle	144.95	
145 Brass Racer Iambic paddle	89.95	
150 Square Brass Racer Iambic paddle	129.95	

W2AU (Unadilla) (W2A)

W2AU 1:1 160-10m balun, lightning arrestor	$ 24.00	
W2AU Beam Balun, 1:1	24.00	
W2AU 4:1 160-10m balun, lightning arrestor	24.00	
W2DU-HF 1:1 1.8-30 MHz choke balun	26.00	
W2DU Beam Balun 40-10m 1:1 choke balun	26.00	
W2DU-VHF 1:1 30-250 MHz choke balun	26.00	
HA AN-sulator center insulator	9.00	
HE END-sulator end insulators .....pair	4.95	
KW-80CW Reyco 80m CW ant traps .....pair	48.00	
KW-80F Reyco 75m phone ant traps .....pair	48.00	
KW-40 Reyco 40m antenna traps .....pair	42.00	
KW-30 Reyco 30m antenna traps .....pair	42.00	
KW-20 Reyco 20m antenna traps .....pair	41.00	
KW-17 Reyco 17m antenna traps .....pair	41.00	
KW-15 Reyco 15m antenna traps .....pair	41.00	
KW-12 Reyco 12m antenna traps .....pair	41.00	
KW-10 Reyco 10m antenna traps .....pair	41.00	
W2AU/W2VS 5-band ant kit (use tuner)	85.00	

W5YI (W5Y)

GWAM Gordon West Advanced study manual .	$ 11.95	
GWAW Gordon West Adv written theory tapes	19.95	
GWE6 Gordon West 6 ea 10-28 wpm code tapes	29.95	
GWEM Gordon West Extra study manual	11.95	
GWET Gordon West Extra code tapes	9.95	
GWEW Gordon West Extra written theory tapes	19.95	
GWG6 Gordon West 6 ea 5-16 wpm code tapes	29.95	
GWGM Gordon West General study manual	9.95	
GWGT Gordon West General code tapes	9.95	
GWGW Gordon West General theory tapes	9.95	
GWHC Gordon West Ham Class instructor video Δwf	19.95	
GWN6 Gordon West 6 ea 0-7 wpm code tapes ...	29.95	
GWNC Gordon West No-Code Tech manual	9.95	
GWNT Gordon West Novice Code Teacher	9.95	
GWNW Gordon West Novice theory tapes	9.95	
GWTW Gordon West Tech theory tapes	9.95	
HOS Ham operator software package	39.95	
NCS No-code ham radio software package	29.95	
NCVS Ham No-Code video licensing seminar ...	21.95	

WABER AC OUTLET STRIPS (WAB)

3SP 3 outlet/breaker/switch/light .....Δm	$ 16.60	4.95
4S 4 outlet/breaker/switch .....Δm	16.60	4.95
5 5 outlet w/breaker .....Δm	16.60	4.95
7S 7 outlet/breaker/switch .....Δm	19.95	6.95

WAHL (WAH)

7740 Quick charge cordless soldering iron kit .	$ 39.95	34.95
7980 Butane soldering iron and torch	29.95	
7985 Butane iron/torch kit package w/case ...	54.95	49.95

WALNUT CREEK (WAL)

CICA 650 MB of current Windows shareware .	$ 29.95	
Garbo 250 MB DOS + 150 MB Mac programs	29.95	
Giga Games 3,000 DOS/Windows games	39.95	29.95
Ham QRZ US & Canada calls plus programs..	29.95	
Hobbes Thousands of OS/2 applications	29.95	
Simtel 650 MB current DOS programs	34.95	29.95

WELLER (WEL)

	Reg	Sale
7200PK 75w soldering gun kit	$ 25.46	
EC-1002-1 40w temp controlled solder stn ...	225.81	199.95
WP-25 25w professional soldering iron	30.06	
W-60P 60w temp controlled soldering iron	57.45	
WTCPT 60w temp controlled soldering stn	128.73	109.95
WSTA3 Pyropen portable LP soldering iron	98.06	89.95
WST2 Pyropen Jr. portable butane iron	78.74	69.95

YAESU (YAE)

YAESU HF TRADE-UP DAYS PROMOTION thru 12/1/96. $150 coupon from Yaesu for FT-101, FT-101B, FT-101E, FT-101F, FT-101EE, FT-101EX, FT-101FE, FT-101FX, FTDX-400, FT-401B, FT-560, FT-570, FT-200/Tempo-1, or FL-101 towards any new Yaesu HF radio.

FT-1000MP/DC 9-band Xcvr/EDSP/tuner	3399.00	2799.95
FT-1000MP 9-band Xcvr/EDSP/tuner/ps	3699.00	2999.95
DVS-2 Digital voice recording module	329.00	289.95
FH-1 Remote control keypad	89.00	
MD-100A8X Desk mic w/tone control	139.00	129.95
MH-31B8 Extra hand microphone	40.00	
SP-8 External speaker w/filters	179.00	169.95
LL-7 Phone patch unit for SP-8	159.00	149.95
TCXO-4 TCXO unit	119.00	109.95
TCXO-6 Deluxe TCXO unit, 0.5 ppm	249.00	229.95
YF-110CN 250 Hz 3rd IF main Rcvr CW filt .	189.00	169.95
YF-110SN 2 KHz 3rd IF main Rcvr SSB filt ..	179.00	159.95
YF-114CN 250 Hz 2nd IF main Rcvr CW filt	179.00	159.95
YF-114SN 2 KHz 2nd IF main Rcvr SSB filt .	179.00	159.95
YF-115C 500 Hz CW Collins mech filter	189.00	169.95
YH-77ST Open-air type stereo headphones .	55.00	
FT-1000 Xcvr w/ps/tuner/keyer/mic/XF-AB	4479.00	3499.95
$200 coupon - FT-1000 thru 6/30/96		
BPF-1 Dual bandpass filter; crossband rcv	199.00	179.95
TCXO-1 Temperature compensated xtal osc	249.00	229.95
XF-C 2.4 KHz SSB xtal filter (455 KHz)	179.00	159.95
XF-D 2 KHz SSB xtal filter (455 KHz)	179.00	159.95
YF-110C/XF-E 500 Hz CW xtal filter (455 KHz)	179.00	159.95
FT-1000D Dlx Xcvr w/BPF/TCXO/XF-ABCDE	5549.00	4399.95
$200 coupon - FT-1000D thru 6/30/96		
DVS-2 Digital voice recording module	329.00	289.95
FIF-232C Interface for RS-232	129.00	119.95
MD-1C8 Desk microphone	139.00	129.95
MD-100A8X* Desk mic w/tone control	139.00	129.95
SP-5 External spkr w/audio filter	179.00	169.95
LL-5 Phone patch unit for SP-5	159.00	149.95
XF-455MC 600Hz CW filter (455KHz); subrcvr	189.00	169.95
YF-110CN/XF-F 250 Hz CW xtal filter (455 KHz) .	189.00	169.95
YH-77ST Open-air type stereo headphones .	55.00	
FT-990DC Xcvr w/tuner & mic	2319.00	1869.95
$200 coupon - FT-990DC thru 6/30/96		
FP-25 Internal power supply for FT-990DC .	369.00	329.95
FP-800 20A heavy duty ps for FT-990DC	329.00	289.95
XF-109C 500 Hz CW filter for FT-990DC	149.00	139.95
FT-990 Xcvr w/ps/tuner/mic/CW filter	2759.00	2199.95
$200 coupon - FT-990 thru 6/30/96		
DVS-2 Digital voice recording module	329.00	289.95
FIF-232C Interface for RS-232	129.00	119.95
MD-1C8 Desk microphone	139.00	129.95
MD-100A8X* Desk mic w/tone control	139.00	129.95
*Recommend mod to Xcvr		
SP-6 External speaker w/filter	179.00	169.95
LL-5 Phone patch unit for SP-6	159.00	149.95
TCXO-2 Temp compensated xtal oscillator ..	219.00	199.95
XF-10.9M-202-01 2nd IF 2 KHz SSB filter ..	149.00	139.95
XF-110CN 455 KHz 250 Hz CW filter	189.00	169.95
YH-77ST Open-air type stereo headphones .	55.00	
SP-767P Speaker/patch for FT-767GX ....Δmf	139.00	129.95
FT-900 Xcvr/remote front panel/mic	1519.00	1249.95
$100 coupon - FT-900 thru 6/30/96		
YSK-900 remote kit FREE with FT-900! Limited Time!		
ATU-2 Internal antenna tuner	279.00	249.95
FT-900/AT Xcvr/rem front/mic/auto tuner	1719.00	1369.95
$100 coupon - FT-900/AT thru 6/30/96		
YSK-900 remote kit FREE with FT-900/AT! Limited Time!		
XF-115S-01 2.75KHz SSB Collins mech filt	189.00	169.95
FT-900/C Xcvr/rem fnt/mic/Collins SSB filter	1617.00	1329.95

YAESU - continued

	Reg	Sale
$100 coupon - FT-900/C thru 6/30/96		
YSK-900 remote kit FREE with FT-900/C! Limited Time!		
FT-900/CAT Xcv/rem fnt/mic/tune/Collins SSB filt	1819.00	1499.95
$100 coupon - FT-900/CAT thru 6/30/96		
YSK-900 remote kit FREE with FT-900/CAT! Limited Time!		
FP-800 20A heavy duty power supply	329.00	289.95
CT-26 Mic adapter cable; modular to 8-pin	15.00	
DVS-2 Digital voice recording module	329.00	289.95
FC-800 External long wire auto tuner	539.00	469.95
FIF-232C Interface for RS-232	129.00	119.95
MD-1C8 Desk microphone	139.00	129.95
MD-100A8X Desk mic w/tone control	139.00	129.95
CT-20 Mic cable for use with MD-1C8	15.00	
MH-31A8J Extra hand microphone	40.00	
MMB-20 Mobile mount	30.00	
SP-6 External speaker w/filter	179.00	169.95
LL-5 Phone patch unit for SP-6	159.00	149.95
SP-7 Mobile speaker	39.00	
TCXO-3 TCXO unit	119.00	109.95
XF-110C 455 KHz 500 Hz CW filter	179.00	159.95
XF-110CN 455 KHz 250 Hz CW filter	189.00	169.95
XF-110S 455 KHz 2.6 KHz SSB filter	189.00	169.95
YF-100 2nd IF 500 Hz CW filter .Dfv	139.00	109.95
YF-101 2nd IF 2.6 KHz SSB filter	179.00	169.95
YA-007FG Mobile fg 3-30 MHz whip ant	159.00	149.95
YH-77ST Open-air type stereo headphones	55.00	
YSK-900 20' remote mtg kit w/tnk mtg bkt	59.00	
MMB-62 Remote control panel bracket	29.00	
FRB-757 External relay box for FT-890	39.00	
XF-455K-251-01 250Hz CW filt; FT-890 .Dmfc	189.00	149.95
FT-840 Xcvr/SW Rcvr	1099.00	899.95
$100 coupon - FT-840 thru 6/30/96		
FP-800 20A heavy duty power supply	329.00	289.95
FC-10 External coax fed auto tuner	399.00	349.95
FC-800 External long wire auto tuner	539.00	469.95
FIF-232C Interface for RS-232	129.00	119.95
FM-747 FM unit	79.00	
MD-1C8 Desk microphone	139.00	129.95
MD-100A8X* Desk mic w/tone control	139.00	129.95
*Recommend mod to Xcvr		
MMB-20 Mobile mount	30.00	
SP-6 External speaker w/filter	179.00	169.95
SP-7 Mobile speaker	39.00	
TCXO-4 TCXO unit	119.00	109.95
YA-007FG Mobile fiberglass HF whip ant	159.00	149.95
YF-112A 6 KHz AM filter	139.00	129.95
YF-112C 500 Hz CW filter	139.00	129.95
YH-77ST Open-air type stereo headphones	55.00	
FP-700 Power supply	279.00	239.95
FC-757AT Auto ant tuner w/memory	585.00	499.95
FL-7000 Solid state amp w/auto ant tuner	2459.00	2099.95
CT-11 Cable - FL-7000 to FT-890/900	20.00	
E-767 Cable - FL-7000/FT-767/990/1000/MP	25.00	
FAS-1-4R Remote antenna selector	149.00	139.95
FRG-100B .1-30 MHz shortwave receiver	739.00	619.95
$25 coupon - FRG-100B thru 6/30/96		
FM Unit-100 FM unit	49.00	
TCXO-4 TCXO unit	119.00	109.95
YF-110C/XF-E 500 Hz CW xtal filter	179.00	159.95
YF-110CN/XF-F 250 Hz CW xtal filter	189.00	169.95
XF-455M6 600 Hz CW filter; FT-650 .Δwv	169.00	129.95
YA-30 1.8-30 MHz broadband dipole ant	255.00	219.95
YH-55 Lo-Z headphones .Dmwc	40.00	
YH-77 Lightweight headphones	34.00	
YS-60 1.8-60 MHz 2kw PEP wattmeter	139.00	129.95
YS-500 140-520 MHz 200w PEP wattmeter	119.00	109.95
FT-736R 25w 2m/430 full dplx Xcvr/ps/mic	2499.00	1969.95
AD-3 100w 2m/440 duplexer	56.00	
E-736 DC cable	15.00	
FEX-736-50 6m module	349.00	309.95
FEX-736-220 220 MHz module	369.00	329.95
FEX-736-1.2 1.2 GHz module	619.00	539.95
FIF-232C Interface for RS-232	129.00	119.95
FTS-8 Encoder/decoder	59.00	
FVS-1A Voice synthesizer	39.00	
Keyer-B Electronic keyer unit	29.00	
MD-1C8 Desk microphone	139.00	129.95

YAESU - continued

	Reg	Sale
MH-1B8 Extra hand microphone	39.00	
SP-767 Speaker w/audio filters	119.00	109.95
TV-736 1.2 GHz ATV converter	179.00	159.95
FT-690R Mk II 10w 6m FM/SSB Xcvr/TTP	889.00	739.95
FT-290R Mk II 25w 2m FM/SSB Xcvr/TTP	749.00	629.95
FT-790R Mk II 25w 430-450 FM/SSB/TTP	869.00	719.95
CSC-19 Soft case	23.00	
FBA-8 Holder for 9 C-cell nicads	44.00	
NC-26B Wall charger for FBA-8	14.00	
FTS-7A Encoder/decoder; current units	42.00	
FT-5100 50/35w 2m/440 FM Xcvr/TTP mic	799.00	649.95
$40 coupon - FT-5100 thru 6/30/96		
FT-5200 50/35w 2m/440 FM/TTP mic .Dmwfv	839.00	599.95
$50 coupon - FT-5200 until gone!		
FT-6200 35/10w 440/1.2GHz FM Xcvr/TTP	899.00	749.95
DVS-3 Digital voice memory unit	149.00	139.95
FRC-4 DTMF pager unit	45.00	
FTS-22 CTCSS decode unit	65.00	
MH-27B8 Extra TTP mic w/8-pin plug	61.00	
MW-2* Wireless remote control mic	149.00	139.95
* Requires jumper modification		
MMB-53 Mobile mtg bkt for MW-1/2	7.00	
SP-7 External speaker	39.00	
YSK-1L Sep kit w/18' cable; FT-5200/6200	59.00	
FT-8500 50/35w 2m/440 FM/FS-10 dlx TTP mic	859.00	709.95
$30 coupon - FT-8500 thru 6/30/96		
FT-8500/MH-39 50/35w 2m/440 FM/std TTP	809.00	669.95
$30 coupon - FT-8500/MH-39 thru 6/30/96		
ADMS-2 Windows prog software; FT-8500	39.00	
CT-39 Packet cable	9.00	
FTS-22 CTCSS decode unit	65.00	
MH-27B8 TTP mic w/8-pin plug	61.00	
MEK-2 Mic adapter kit for MH-27B8	39.00	
MMB-60 Quick release mobile bracket	26.00	
SP-7 External speaker	39.00	
YSK-8500 Remote separation kit	69.00	
MMB-62 Remote control panel bracket	29.00	
DVS-1 Dig voice mem module; 212/712/912 Δwf	109.00	9.95
FTS-12 Decoder; 212RH/712RH/912RH ..Δmf	61.00	
MH-15C8 Extra TTP mic;212/712/912RH ..Δwf	56.00	49.95
MH-15D8 Autodial TTP microphone	82.00	
FT-7400H 35w 440 FM Xcvr w/TTP mic	629.00	519.95
2400 Mic Cable 2' packet cable	9.00	
FRC-6 DTMF pager unit	45.00	
FTS-17A CTCSS decode unit	62.00	
MH-27A8J Extra TTP mic w/modular plug	64.00	
SP-7 External speaker	39.00	
FT-3000M 70w 2m FM Xcvr/TTP/extended rcv	599.00	489.95
CT-39 Packet cable	9.00	
DVS-4 Digital voice recording module	62.00	
FTS-17A CTCSS decode unit	62.00	
FT-2500M 50w 2m FM Xcvr w/TTP mic	459.00	369.95
$30 coupon - FT-2500M thru 6/30/96		
2400 Mic Cable 2' packet cable	9.00	
FT-2200 50w 2m FM Xcvr w/TTP mic Dmwfcv	489.00	299.95
$40 coupon - FT-2200 until gone!		
FT-7200 35w 440 FM Xcvr w/TTP mic	639.00	529.95
DVS-3 Digital voice memory unit	149.00	139.95
FTS-27 CTCSS decode unit	61.00	
MW-2 Wireless remote control microphone	149.00	139.95
MMB-53 Mobile mtg bkt for MW-2	7.00	
SP-7 External speaker	39.00	
SP-3 Small mobile speaker	24.00	
SP-4 Mobile speaker	32.00	
VXR-5000VADC 25w 2m FM repeater	1399.00	1199.95
VXR-5000UCDC 25w 440 FM repeater	1399.00	1199.95
Repeaters require service dept. set-up; $68 minimum		
COM ID-8 Auto morse code ID'er	89.95	
MR-KIT1 19" rack mtg kit; VXR repeater	218.00	199.95
PROG DISK-A Rptr programming software	15.00	
VX VPL-1 PC programming cable	55.00	

Accessories for FT-208R/708R

FNB-2A Nicad battery pack	$ 53.00	
YM-24A Speaker/microphone .Dm	39.95	

Accessories for 09-series/03-series

FNB-4A 500ma 12v battery	$ 65.00	
FTS-6 Encoder/decoder; 09-series .Dmf	56.00	

YAESU - continued

	Reg	Sale
FT-76/25 2w 440 FM HT/batt/cgr .Dw	329.00	229.95

Accessories for FT-26/415/416/530

CA-8 2 charging sleeves; NC-50/416/530	$ 25.00	
CLIP-3 Belt clip	7.00	
CSC-50 Vinyl case; 415/416/FNB25 .Δmw	22.00	19.95
CSC-52 Case; 415/416/FNB26/27 .Δmwf	22.00	19.95
CSC-53 Vinyl case; 26/76/FNB-25 .Δmwv	22.00	6.95
CSC-55 Case: 26/76 w/FNB-26/27 .Δmwf	22.00	6.95
CSC-56 Vinyl case; 530 w/FNB-25	22.00	
CSC-58 Vinyl case; 530 w/FNB-26/27	22.00	
FBA-12 AA cell holder	23.00	
FNB-25 600ma 7.2v nicad battery	55.00	
FNB-25G 600ma 7.2v nicad battery .Dm	51.00	39.95
FNB-26 1000ma 7.2v nicad battery	83.00	
FNB-27 600ma 12v nicad battery (5w)	83.00	
FNB-27G 600ma 12v nicad battery (5w)...Dm	79.00	59.95
FTS-17A CTCSS encode/decode unit	62.00	
MMB-54 Mobile mtg bracket; FT-26/530	26.00	
NC-18B Wall charger for FNB-27	16.00	
NC-28B Wall charger for FNB-25/26	16.00	
YH-2 Lightweight VOX headset w/mic	35.00	
FT-23R-17 2.5w 2m FM HT/FNB-17/cgr	277.00	219.95
FT-23R-12 5w 2m FM HT/FNB-12S/cgr	295.00	234.95
FT-33R 5w 220 FM HT/batt/cgr	369.00	299.95
FT-411E 2.5w 2m FM HT/FNB-17/cgr/TTP	368.00	289.95
FT-811 2w 440 FM HT/batt/cgr/TTP .Dmwv	394.00	199.95
FT-911 1w 1.2 GHz FM HT/batt/cgr/TTP	569.00	469.95

Accs for FT-23R/33R/73R/411E/811/470/911

CA-7 2 charging sleeves; NC-50/411E/470	$ 25.00	
CLIP-1 Belt clip	8.00	
CSC-28 Soft case; 23R/33R/73R w/FNB-12S	22.00	
CSC-35 Soft case; FT-411E w/FNB-17	22.00	
CSC-37 Soft case; FT-411E w/FNB-12S/14	22.00	
CSC-43 Soft case; FT-470/FNB-9/17 ..Δmwfv	22.00	
CSC-45 Soft case; 470/FNB-12S/14 .Δmv	22.00	
CSC-48 Soft case; 23R/33R/73R w/FNB-17	22.00	
FBA-17 AA battery holder	25.00	
FNB-12S 600ma 12v (5w) battery	71.00	
FNB-14 1000ma 7.2v battery	71.00	
FNB-17 600ma 7.2v battery	52.00	
FTS-12 Encoder/decoder for FT-23R/33R/73R	61.00	
FTS-17A Tone squelch/pager; FT-411E	62.00	
FTT-4 DTMF (TTP) unit for FT-23R	61.00	
MH-12A2B Speaker/microphone	50.00	
MH-19A2B Earpiece/microphone	46.00	
MH-32A2B Compact lapel speaker/mic	40.00	
MH-35A2B Spkr mic/clip/earphone jack	40.00	
MMB-46 Mobile hanger for FT-470	15.00	
MMB-54 Mobile mtg bracket	26.00	
NC-18B Wall charger for FNB-12S	16.00	
NC-28B Extra wall charger for FNB-9/10/17	16.00	
NC-29 Desk quick cgr; FNB-12S/14/17	77.00	
NC-34B Wall charger for FNB-14	15.00	
NC-37 1-hr desk cgr; FNB-12S/14/17 .Dmf	125.00	119.95
PA-6 Mobile DC adapter/cgr; FNB-9/10/14/17	30.00	
YH-2 Lightweight VOX headset w/mic	35.00	
FT-10/40B-A06 2.5w 2m HT/6 keypad/30 ch	309.00	249.95
FT-10/41B-A06 5w 2m HT/6 keypad/30 ch	319.00	259.95
FT-10/40B-A16 2.5w 2m HT/16 key/30 ch	339.00	269.95
FT-10/41B-A16 5w 2m HT/16 keypad/30 ch	349.00	279.95
FT-10/40B-A16D 2.5w 2m HT/16 key/99 ch	369.00	299.95
FT-10/41B-A16D 5w 2m HT/16 keypad/99 ch	379.00	309.95
FT-10/40B-A16S 2.5w 2m/16key/99ch/DVRS	389.00	309.95
FT-10/41B-A16S 5w 2m/16 key/99 ch/DVRS	399.00	319.95
$45 coupon - all models FT-10 thru 6/30/96		
RH-1 case protector FREE with FT-10! Limited Time!		
FT-40/40B-A06 2w 440 HT/6 keypad/30 ch	339.00	274.95
FT-40/41B-A06 5w 440 HT/6 keypad/30 ch	349.00	284.95
FT-40/40B-A16 2w 440 HT/16 key/30 ch	369.00	299.95
FT-40/41B-A16 5w 440 HT/16 keypad/30 ch	379.00	304.95
FT-40/40B-A16D 2w 440 HT/16 key/99 ch	399.00	324.95
FT-40/41B-A16D 5w 440 HT/16 keypad/99 ch	409.00	329.95
FT-40/40B-A16S 2w 440/16key/99ch/DVRS	419.00	339.95
FT-40/41B-A16S 5w 440/16 key/99 ch/DVRS	429.00	344.95
RH-1 case protector FREE with FT-40! Limited Time!		
FT-50R/40B 2w 2m/440 HT/FNB-40/ext rcv/TTP	409.00	329.95
FT-50R/41B 5w 2m/440 HT/FNB-41/ext rcv/TTP	419.00	339.95

YAESU - continued

	Reg	Sale
ADMS-1B Windows prog software; FT-10/40	39.00	
CA-14 2 charging sleeves; NC-50	25.00	
CN-2 BNC to SMA adapter: FT-10/40	8.00	
CN-3 BNC to SMA adapter: FT-50R	8.00	
CSC-68 Soft case; FNB-41/FBA-15	22.00	
CSC-69 Soft case; /FNB-40	22.00	
CT-27 Cloning cable	10.00	
CT-30 Microphone Y adapter	10.00	
EDC-5B DC adapter w/noise filter	25.00	
EDC-6 DC adapter; plug & wire only	7.00	
FBA-15 AA battery holder	23.00	
FNB-40 650ma 6v battery	47.00	
FNB-41 600ma 9.6v (5w) battery	57.00	
FNB-42 1100ma 9.6v (5w) battery	65.00	
PA-17 Battery cable extender	59.00	
FTT-10/A06 6-key keypad/encoder/30 ch	27.00	
FTT-10/A16 16-key keypad/encoder/30 ch	35.00	
FTT-10/A16D 16-key keypad/enc/dec/99 ch	64.00	
FTT-10/A16S 16-key pad/enc/dec/99ch/DVRS	83.00	
FTT-12 16-key keypad/dec/DVRS; FT-50R	64.00	
MH-34A2B/MH-34B4B Speaker/mic	43.00	
MH-37A4B Ear-piece microphone	43.00	
NC-50 1-hour dual slot charger	109.00	
RH-1 Rubber case protector	7.00	
VC-23 VOX headset	59.00	
FT-11R 1.5w 2m FM HT/FNB-31/cgr/TTP	389.00	314.95
FT-11R/HP 5w 2m FM HT/FNB-38/cgr/TTP	399.00	334.95
$30 coupon - FT-11R//FT-11R/HP thru 6/30/96		
FT-41R 1.5w 440 FM HT/batt/cgr/TTP	479.00	379.95
$30 coupon - FT-41R thru 6/30/96		
FT-51R 2w 2m/440 FM HT/FNB-31/cgr/TTP	619.00	509.95
FT-51R/HP 5w 2m/440 FM HT/FNB-38/cgr/TTP	639.00	529.95
$30 coupon - FT-51R//FT-51R/HP thru 6/30/96		
51R Clone/CT-51 Clone cable; FT-11/41/51R	9.00	
ADMS-1B Windows programming software	39.00	
CA-10 2 charging sleeves; NC-50/11/41/51R	18.00	
CD-2 Mobile rapid charger; FT-11/41/51R	99.00	
CSC-61 Case; 11R/41R/FNB-33/38/FBA-14	22.00	
CSC-62 Soft case for FT-11R/41R/FNB-31	22.00	
CSC-66 Soft case; FT-51R/FNB-33/38/FBA-14	22.00	
CSC-67 Soft case for FT-51R/FNB-31	22.00	

YAESU - continued

	Reg	Sale
EDC-12 DC adapter; FT-11R/41R/51R	39.00	
FBA-14 AA battery holder	23.00	
FNB-31 600ma 4.8v battery	57.00	
FNB-33 1200ma 4.8v battery	83.00	
FNB-38 600ma 9.6v (5w) battery	83.00	
FTS-26 CTCSS decoder	59.00	
MH-12A2B Speaker/microphone	50.00	
MH-19A2B Earpiece/microphone	46.00	
MH-29A2B LCD display spkr/mic; 51R	109.00	
MH-32A2B Compact lapel speaker/mic	40.00	
MH-35A2B Spkr mic/clip/earphone jack	40.00	
NC-34B Wall charger for FNB-33	15.00	
NC-38B Wall charger for FNB-38	16.00	
NC-55B Wall charger for FNB-31	15.00	
NC-50 1-hour dual slot charger	109.00	
PA-10A Mobile drop-in adapter/cgr	66.00	
VC-22 Headset w/VOX	59.00	

ANTENNA ROTORS

	Reg	Sale
G-450XL 10 sq ft antenna rotor	$269.00	239.95
G-500A 12 sq ft elevation rotor/8-wire	319.00	279.95
G-800S Med/hvy duty 450 degree 17sq ft/5-wire	399.00	339.95
$25 coupon - G-800S thru 6/30/96		
G-800SDX Med/hvy duty 17sq ft/presets/5-wire	499.00	429.95
$25 coupon - G-800SDX thru 6/30/96		
G-1000SDX HD 450 degree 23sq ft/presets/5-wire	609.00	519.95
$25 coupon - G-1000SDX thru 6/30/96		
G-2800SDX HD 450 degree 34sq ft/presets/8-wire	1329.00	1139.95
$25 coupon - G-2800SDX thru 6/30/96		
G-5400B Light/med 11sq ft az/el//2x8-wire	629.00	539.95
Sep Kit Separation kit for G-5400B	30.00	
GC-038 Mast clamp; 400/800/1000/5400B	30.00	
GC-048 Mast clamp; G-2700/2800SDX	45.00	
GS-050 50mm thrust bearing; mast 1¼-2"	35.00	
GS-065 65mm thrust bearing; mast 1½-2½"	52.00	
GS-23 Interface; G-800/1000/2700/2800SDX	345.00	299.95
GS-232 Interface for G-5400B	547.00	469.95

See BELDEN for rotor cable

ZENITH (ZEN)

	Reg	Sale
A-8477 75 ohm high-pass filter .....Dmwfcv		9.95

zm Xpressions (ZMX)

What is your **TNC doing?** Book ..... $ 15.00

CLOSE-OUTS

	Reg	Sale
AEA AVT Master video system; Amiga v		129.95
AEA PCB-88 IBM plug-in packet adapt mwfcv		99.95
ALI DJ-F1T 2w 2m FM HT/TTP .....mwfv		188.95
ALI DJ-F1T/HP 5w 2m FM HT/TTP .....mwfv		208.95
ALI DR-600TB 45/35w 2m/440 FM .....mwfcv		539.95
CES 410 Personal Patch interconnect .....mw		169.95
CES SSI-68 Simplex autopatch .....wv		269.95
CSY CS-1688 Controller .....mwfv		169.95
GRU Cosmopolit Port AM/FM/SW Rcvr .....fv		139.95
ICO AH-2A Antenna tuning system .....mwv		499.95
ICO AH-610 Dual band 6/10m base ant .....w		119.95
ICO EX-627 HF auto ant selector .....mwf		279.95
ICO IC-T41A 440 FM HT/batt/cgr/TTP ...mwfv		298.95
ICO IC-X21AT 440/1.2 HT/batt/cgr/TTP .mwfv		499.95
ICO IC-775DSP/ICO Xcvr w/DSP install .mwcv		3299.95
ICO M-2 5w VHF marine HT.....mwf		269.95
ICO PS-15 20A power supply .....mwfv		179.95
ICO PS-45 Compact 8A power supply .....m		119.95
ICO R-71A Shortwave receiver .....mwfv		1199.95
ICO R-7100-12 25MHz-2GHz rcvr/cell blkd mwfv		1299.95
ICO RP-4020 25w 440 FM repeater .....mwv		1599
ICO TV-970 1.2GHz ATV adapter; 970 .....fv		299.95
ICO UX-S92A 2m SSB module; IC-901.....m		179.95
KAN KPC-2 Packet controller .....m		149.95
KAN KPC-4 Dual port packet controller .....mv		239.95
KEN PS-31 Power supply; TS-790A .....fv		169.95
KEN TM-455A 35w 430-440 SSB/FM .....mfv		598.95
KEN TS-140S Xcvr/.5-30 MHz Rcvr/mic .mwfc		969.95
KEN UT-28S 50w 10m unit;741/742/etc mwfv		169.95
MFJ 1276 Packet/Pactor controller .....f		149.95
MFJ 1278T Turbo controller w/2400.....m		229.95
MFJ 2040 Repeater controller.....w		229.95
OPT 8040 Multifunction counter/timer ..mwfv		499.95
PAL P-408 AC HF receiver preamp.....wfc		109.95
PAL P-412X 160-6m 20db mob Xcv pre ...wfcv		149.95
PAL PF-300 SC audio filter .....fv		109.95
RFC 2-315 2m FM/SSB 30/150w amp/pre .mf		269.95
STA C-188A 2m FM HT/TTP .....w/coupon,fv		254.95
UNI HR-2510 25w 10m FM/SSB Xcvr ....mwfv		229.95
YAE FT-76/25 440 FM HT .....w		229.95
YAE FT-811 2w 440 FM HT/TTP.....mwv		199.95
YAE NC-37 1-hr desk cgr; FNB12S/14/17 ..mf		119.95
YAE XF-455K-251-01 250Hz CW filter .....mfc		149.95
YAE XF-455M6 600 Hz CW filter; FT-650 ....wv		129.95
YAE YF-100 500 Hz CW filter .....fv		109.95

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WORLD WIDE WEB: **http://www.aesham.com** Take a look at AES® on the World Wide Web. We have: Information on each of our Branch Stores; Open House & Special Event Dates/Times; Price Lists; Links to other Ham Radio related web sites and a place to request the AES® Catalog and periodic update flyers. Stop by regularly, there are always changes being made.

e-mail: **help@aesham.com** Messages and requests for pricing can also be sent via our e-mail address to our staff and we will reply to them as soon as possible.

HELP: If you have any questions about AES® ON-LINE, please contact our Sysop, Richard Engle, KE9QU at the Milwaukee store. Richard was licensed in 1969, and has been with us for over 12 years. He is very knowledgeable in all phases of amateur radio, especially Digital Communications.

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(left) Ms. Jean Tyrell (former Alpha Delta Executive) joins Elin Sterman, K9YHE on a helicopter ride over Kauai, Hawaii searching for a new AES® Store Location!

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Used Amateur Radio Equipment List

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Note: This Used Equipment List reflects what was in our inventory when this catalog was printed. We trade, buy and sell a tremendous amount of used equipment, so this is only a representation of what may be available at any given time. Each store has immediate on-line computer access of the entire AES used gear inventory by location–one phone call is all that is needed to see if an item is in stock. The letters after the price indicate which location had the particular item at the time of inventory: m = Milwaukee; w = Wickliffe; f = Orlando; c = Clearwater; v = Las Vegas. + after item denotes too many accessories to list.

ADI
ARC-12 smart chgr .....$69 m
AT-200HP 2M 5W HT....149 c
ALINCO
ALD-24T 2M/440 25W .$329 m
DJ-100T 2.5W 2M HT ...119 c
DJ-580T 2M/440 HT.....299 w
DR-110T 45W 2M .....259 cf
DR-130T 50W 2M .....249 w
DR-610T w/EDC-24 ....479 wc
DX-70T HF/6M 12V+ ..739 c
EBP-18N battery.....39 m
EDC-34 desk charger ....69 f
AMERITRON
AL-811 600w hf amp $479 m
ASTATIC
TUG-9 amp desk stand $39 f
AZDEN
PCS-7000H 50W 2M..$289 mw
PCS-7500H 50W 6M....309 v
B&K
2830 3½ dig DMM.....$99 m
BENCHER
BY-1 iambic paddle.....$49 c
YA-1 1kw low pass filter49 w
BIRD
4240-179 PL-259 QC ..$19 m
DAIWA
CN-410M HF/2M swr ...$69 w
CN-465M V/UHF meter ..69 f
DIAMOND
F-22A 2M base ant.....$69 m
MX-72D 2M/440 dplxr ...39 mf
MX-72N 2M/440 dplxr ...39 f
DRAKE
L-7 2KW HF amp.....$899 w
SW-8 swl receiver.....559 mw
GENESYS
SY-25D V/U duplexer ...$25 m
GRUNDIG
TRAVELLER II swl .....$69 m
YACHT BOY 400 swl.....169 mcv
YACHT BOY 500 swl.....189 m
EIL
HM-10 DUAL fits Yaesu..$85 m
HENRY
2KD CLASSIC 2KW HF $999 w
HY-GAIN
12AVQS 10-20M vert ...$69 m
2400-155 headset/mic ..59 f
ICOM
AD-15 p/s .....$19 mw
AT-160 auto tuner.....199 c
BC-35 desk charger .....49 w
BP-114 12V/400ma.....39 m
BP-130A battery case....19 m
BP-174 12V 600ma .....59 mw
BP-2 425ma 7.2V batt ..20 m
CP-13 cig liter cord/filt .13 f
HM-46 spkr/mic .....19 mf
HM-75 spkr/mic .....35 c
HM-8 mobile mic.....39 f
HM-9 spkr/mic .....29 mw
SM-6 desk microphone..49 v
IC-229H 50W 2M xcvr..279 m
IC-2410A dual band ...459 f
IC-2410A w/UT55,6,7..489 m
IC-27A 2M 25W mobile259 cv
IC-281H 2M 50W .....299 mcf
IC-3200A 2M/440.....379 m
IC-4SRA 440 HT/800 rx..319 f
IC-449A 440 FM .....329 w
IC-729 HF xcvr/CR-64.1039 v
IC-735 HF xcvr no mic .709 w
IC-740 HF xcvr/FL53+ .549 m
IC-751 HF xcvr/FL52,33.869 m
IC-751 HF xcvr/PS-35 ...899 f
IC-775DSP HF dsp xcvr2999 f
IC-781 HF +sn1089 ..3629 w
IC-820H 2M/440 ssb fm 1279 m
IC-T21A 2M HT w/440rx .209 v
LC-2AT case IC2AT .....15 m
LC-73 case.....14 f
PS-45 power supply.....89 m
R-1-15 .1-1.2ghz rcvr .329 mc
R-71A swl rcvr.....689 c
R-71A swl w/pbt.....699 f
R-71A swl w/pbt/RC11 ..729 w
JPS
NF-60 filter.....$99 fc
NIR-10 filter .....199 wcf
SSTV-1 sstv filter.....119 m
KENWOOD
IF-232C translator.....$69 mc
KLF-3 cig liter cord.....16 m
KNB-7A 12v battery.....50 w
KPS-12 power supply.....69 m
MB-13 quick rlse brkt....39 m
MC-43S hand mic .....19 c
MC-80 desk mic .....79 c
MC-85 deluxe desk mic .99 m
PB-18 1100ma 7.2v bat72 v
PB-9 7.2/600ma w/chg .15 m
PC-1A phone patch .....89 m
PS-30 power supply.....119 v
R-2000 swl rcvr.....499 m
R-2000 (no manual)....479 w
R-5000 swl reciever ....699 mcf
R-5000 w/VC-20 .....829 f
R-5000 w/cw/VC-20....859 f
SMC-31 spkr/mic .....35 w
SMC-32 spkr/mic .....38 c
SM-220 scope/BS-8 ....319 v
SP-950 accy speaker.....99 w
TM-201A 2M 25W.....219 m
TM-201B 2M 45W.....259 m
TM-221A 2M 45W.....249 mf
TM-231A 2M 50w .....259 mc
TM-231A w/TSU-6 .....289 m
TM-241A 2M 50W.....269 all
TM-251A 2M 50W.....279 v
TM-255A 2M 40W fm ssb.699 w
TM-2550A 45W 2M.....289 fv
TM-2570A 70W 2M/TU7 419 m
TM-3530A 25W 220/TU7329 m
TM-441A w/KQT8.....439 f
TM-631A 2M/220.....519 w
TM-721A 2M/440.....429 f
TM-751A 2M ssb fm/TU7 .499 v
TR-7800 25W 2M.....169 v
TR-7930 25W 2M.....249 m
TR-7950 45w 2M .....259 mf
TR-851A 430-440 ssb ..539 v
TR-9130 25W fm ssb ...389 m
TS-440S HF xcvr .....799 cf
TS-440S/AT HF xcvr .....899 mw
TS-440S/AT cw/brkt.....949 w
TS-440S/AT w/c/s/IC10.959 w
TS-440S/AT w/sn .....929 fv
TS-520S HF xcvr .....399 c
TS-520S HF xcvr/cw....429 v
TS-530S HF xcvr/cw....539 w
TS-60S 6M xcvr .....819 wf
TS-680S HF/6M xcvr....789 f
TS-820S HF xcvr/cw.....479 m
TS-790A 2M/440 fm ssb 1399 m
TS-830S HF xcvr .....649 mv
TS-830S HF w/cn .....679 v
TS-850S hf xcvr.....1199 w
TS-850S/AT w/YK-88C1 1389 f
TS-930S/AT HF 3 filter.1029 w
TS-940S HF xcvr .....1229 w
TS-940S/AT HF xcvr ...1399 mv
TS-940S/AT (ruff cab)1349 m
TS-950SDX HF xcvr....2999 c
TW-4000A w/TU4C.....369 mw
TW-4000A TU4C/VS-1 .409 mcv
TW-4100A 2m/440 .....389 m
TW-4100A w/TU7.....409 c
UT-1200S 1.2ghz unit..269 m
YG-455C 500hz cw filt ..50 c
MFJ
1020A indoor act ant.....$39 mc
1030BX preamp .....19 c
1040B preselector .....69 v
1214PC interface .....109 f
1224 interface.....49 m
1229 interface.....59 m
1272BX tnc/sw PK-232 .29 m
1272MX tnc/sw .....29 w
1282 soft V20/C64 .....17 m
1305 5V power supply .....9 w
1312 12V p/supply .....9 w
1312B 12V p/supply.....9 f
260B 300W dummy load .24 m
283 speaker mic.....19 w
408 keyer.....39 c
451X cw keyer.....59 w
486 Super Grandmaster...99 m
624D phone patch.....65 mf
816 swr/power meter.....23 w
9030 30m CW xcvr .....119 m
9120B 20m CW pkg ....259 c
921 2M/220 tuner/swr...49 v
941C antenna tuner .....59 c
941D antenna tuner .....79 c
941E antenna tuner .....79 c
948 antenna tuner .....79 f
949D antenna tuner .....89 m
949EY antenna tuner ....99 c
989B antenna tuner ....249 m
MIRAGE
MP-3 uhf wattmeter ....$99 c
NEWTON TVRO
GBS2000 sat test set $149 w
NYE VIKING
RFM-005 power meter$179 m
OPTOELECTRONICS
SCOUT model 25.....$359 w
RANGER
RCI-2950 10m xcvr ...$209 v
SANGEAN
ATS-808 swl rcvr .....$119 m
SGC
QMS-1 quick mt sys ..$599 m
SONY
ICF-SW1S swl rcvr.....$199 c
ICF-SW7600 swl rcvr ...149 m
ICF-SW7600 w/o ps .....139 f
ICF-SW77 receiver .....359 m
ICF-2002 w/o manual .139 wc
STANDARD
CLC-550 case .....$15 m
CMU-160 memory exp.....5 w
C168A 2M mini HT.....249 w
C528A w/CNB153.....389 w
C5608DA 2m/440mobile599 m
C628A w/CNB-151+.....579 w
STARTEK
15BG freq/counter .....$139 f
15UHS frequency counter ..119 c
TEN-TEC
444 1KW hf amp.....$799 f
TRIMBLE
TRANSPAK gps unit+$695m
UNIDEN
BC-350A scanner.....$69 mv
HR-2600 25W 10M.....159 v
VIBROPLEX
ORIG PRESENTATION..$179 w
YAESU
ADMS2 pgm kit ft8500$29 m
CSC-29 case for ht.....14 w
CSC-43 case for ht.....14 v
CSC-61 case for ht.....15 mw
CSC-62 case for ht.....15 w
CSC-66 case for ht.....15 m
E736 dc cord FT736R ....12 f
FBA-14 battery holder ...19 w
FBA-3 battery holder .....19 w
FBA-8 bat holder 290R..29 m
FL-7000 hf amp/tuner1679 f
FNB-25 7.2 600 mah.....25 m
FNB-33 4.8V/1200 mah .59 w
FP-12 power supply .....99 v
FRG-7000 swl rcvr.....229 f
FRG-8800 swl rcvr.....529 m
FRG-8800/FRV-8800 ...579 m
FRT-7700 rcv ant tuner .39 m
FT-212RH 45W 2M+.....309 c
FT-2200 2M/50W .....249 v
FT-23R17 TTP 2M 2W .199 w
FT-2400H 2M/50W.....279 m
FT-270RH 2M fm xcvr ..269 w
FT-411E 2M 2.5W ht+ .309 w
FT-51R dual band ht ...389 m
FT-5200 w/FTS-22.....519 m
FT-5200 w/YSK-1L remote..529 m
FT-5200 w/FTS-22/DVS3.579 w
FT-690R Mk II 6M + ...559 v
FT-712RH 35W 440 fm....269 m
FT-767GX w/2M/440..1579 c
FT-767GX w/2/6M/430+1729 m
FT-767GX w/440.....1449 m
FT-815 UHF HT.....239 m
FT-840 HF w/YF112C ...739 w
FT-890 HF xcvr.....899 m
FT-901D HF xcvr .....499 f
FT-990 HF xcvr.....1599 fw
FT-990 w/250hz cw ...1629 f
FV-700DM remote VFO...69 m
MD-1C8 desk mic.....89 m
MMB-20 mobile brkt 757.19 m
NC-29 rapid charger .....49 m
NC-34B charger .....9 m
PA-10A mobile adapter .49 w
SP-767P spkr/patch .....89 m
XF-10.9M20201 filter ..109 w
XF-109C 500hz filter ...109 w
YSK-4700 Keyboard.....29 w
YSK-900 remote kit .....39 f

This Used Equipment list & the Demo Equipment list on the next page were prepared from an actual inventory taken on 5/24/96. Availability & Prices are subject to change without notice.

■ **TRADE-INS** We will take your clean late model SSB or FM gear in trade towards New Equipment shown in this catalog, or we will buy it outright for Cash – write or call for a quote. In order to receive the full value as quoted, your equipment must arrive at our location in good electrical and physical condition, free from abnormal wear, defects, modifications, corrosion and smoke residue. The manual and any original accessories that came with the unit must be included. Note: We do not take in data controllers,UHF/VHF amplifiers or antennas.

■ **USED EQUIPMENT** After the purchase and receipt of USED equipment, there is a 10-Day Trial. During this period, if the equipment you received is unsatisfactory for any reason, you may return it for a refund, less shipping charges – both ways. If there is a defect, repair parts and labor are covered under a 30 Day Warranty. Return the equipment to the store it was purchased from, prepaid and insured. We will correct the defect and return it at no charge. Within 90 days after you receive our shipment of USED equipment, we will allow you Full Trade-in toward Higher Priced NEW equipment. To qualify, the condition of the item must be as it was when you originally received it from us.

■ **24 HOUR BBS** Call **414-358-3472** for Latest updates on Used Gear, Open Cartons & Demos. You may also phone any of the AES Stores, all inventories are available on computer.

Miles-K9HMQ, our Service Manager makes sure all used gear meets original specifications before for it's shipped out.

TERRY W9DIA
King of Traders

Terry, the *Original King of Traders*, began the tradition of Quality Used Gear more than 38 years ago. The standard was set, and the tradition continues on.

We have an opening for a Service Technician in our Clearwater, Florida Store. For information call Miles Cundy at 414-358-0333

Save on New Equipment Open Cartons and Demos

The following is a list of brand New Equipment that has been demonstrated, on display or restocked. The cartons are no longer factory sealed, but each piece has been checked out in our service department and carries a 100% New Warranty. The letter after the price is the location at the time of inventory. **m** = Milwaukee; **w** = Wickliffe; **f** = Orlando; **c** = Clearwater; **v** = Las Vegas. Limited quantities – Order Now! Used equipment policies do not apply.

ADI — Special
AR-146 50W 2M mobile ... $224.95 m
AT-400HP 5W 440 HT ... 179.95 m

AEA
SOLOOP 10-30 loop antenna ... $289.95 f
MacRATT Mac prog PK88/232 ... 58.95 m
PCB-88 IBM plug in packet adapter ... 89.95 m
PC-Pakratt for Windows IBM soft ... 107.95 mw
PC-Pakratt II IBM software ... 50.00 m
PK-232MBX multimode controller ... 269.95 m
PK-12 1200 bps packet controller ... 109.95 m
PK-96 9600 bps packet 32K ... 179.95 m
PK-96 /100K 9600 bps packet ... 224.95 m
RL-60 radio link HF remote via HT ... 259.95 v
100K upgrade for PK-96 ... 45.00 v

ALINCO
DJ-G5T 2M/440 FM HT ... $419.95 w
DJ-G5TY 2M/440 FM HT ... 359.95 v
DJ-480T 440 FM HT ... 197.95 m
DJ-582T 2M/440 2.5W FM HT ... 197.95 m
DR-1200TH 2M 9600 bps xcvr ... 239.95 f
DR-130T 2M 50W mobile ... 251.95 v
DR-150T 2M 50W mobile w/UHF rx ... 269.95 m
DR-610T 2M/440 50/35W xcvr ... 569.95 fv
DX-70 Compact HF xcvr/6M ... 799.95 m
EBP-20N 7.2 700ma battery ... 42.50 v
EBP-24N 7.2 1000ma battery ... 69.95 m
EBP-6N battery ... 39.95 m
EME-10 headset w/vox/ptt ... 61.20 w

ALPHA DELTA
Delta-2 2 position coax switch ... $44.95 m

AMECO
TPA tunable preamp. ... $64.95 m

AMERITRON
ATR-15 1.5KW antenna tuner ... $314.95 v
RCS-4 4 position wireless remote sw. 116.95 f
RCS-8VN 5 position remote sw.w/"N" 124.95 m

AOR
SDU-5000 spec display. ... $809.95 m

ASTRON
RS-12A 9 amp/12A surge power supply. $71.95 w
RS-12S 9 amp/12A surge w/speaker ... 79.95 m
RS-35A/220 220 volt 25A /35A surge ... 152.95 m
RS-7A 5 amp power supply ... 53.95 m
VS-50M variable 37A P/S w/meter ... 229.95 m

AZDEN
AZ-11 5W 10M HT ... $339.95 m
AZ-21 5W 2M HT ... 269.95 m
AZ-61 5W 6M HT ... 349.95 fm
PCS-7800H 50W 10M mobile xcvr ... 349.95 m
PCS-7800H 50W 10M new refurb ... 369.95 f

B&K
2860 digital multimeter ... $71.95 m
815 parts tester ... 74.95 m

BENCHER
ST-1 single lever paddle ... $63.95 w

BUTTERNUT
HF-6VX 10-80M vertical antenna ... $159.95 m

CES
SDI-50 autopatch/controller ... $359.95 m

COMET
CM1200 1.2GHz mini-meter ... $64.95 f
FP-19 900 mhz 16 db antenna ... 89.95 m
GP-15 6/2/440 8' antenna ... 149.95 f
SB-25NMO 2m 4.1db 4'8" mobile ant.. 44.95 v

COMMUNICATIONS SPECIALISTS
ID-8 auto morse station id'er ... $80.95 m

CONNECT SYSTEMS
PRIVATE PATCH V interconnect ... $379.95 m

CUSHCRAFT
APR-18A radial kit ... $56.95 v
ARX-270U 2m/440 base antenna ... 188.96 v
PS-4 polarity switch ... 69.95 m
22NSK stacking kit for (2) 17B2s ... 69.95 m

DAIWA
DP-810 digital power meter ... $199.95 m
NS-660PA 1.8-150 mhz 3KW meter ... 179.95 m

DAVIS
RG-4 rain collector ... $49.95 m
WIZARD III weather station 7425 ... 152.95 m
7852 rain collector II ... 62.95 m

DRAKE — Special
R-8 shortwave reciever ... $849.95 wfv
R-8 A shortwave reciever ... $999.95 m
SW-8 shortwave reciever ... 629.95 m

GROTHE
VS-2 emergency vehicle siren ... $79.95 m
VS-4 siren/PA unit ... 124.95 m

GRUNDIG
YACHT BOY 400 swl receiver ... $179.95 v
SATELLIT 700 swl receiver ... 399.95 m

HAL
P-38 dsp modem ... $314.95 m

HEIL
BM-10-5 boom mic/headset w/HC-5 $64.95 f
HM10-5K mic for Kenwood ... 74.95 m
PROSET 4 deluxe boom mic/headset . 117.95 m
PROSET 5 deluxe boom mic/headset . 117.95 m

HUSTLER
G3-754 4.2db 6M vertical antenna ... $89.95 m

HY-GAIN
300 HDR-300 heavy duty rotor ... $836.95 v

ICOM
AD-12 external power adapt 2GAT ... $27.50 m
AG-35 mast mount 440 preamp ... 149.95 m
AT-150 auto tuner ... 475.00 mw
BC-79A drop in charger ... 94.50 m
BP-113 7.2/1200ma battery ... 79.95 v
BP-157A 7.2/900ma battery ... 59.95 m
BP-173 9.6V 600ma battery T22/7A ... 89.95 m
BP-2 425ma/7.2V nicad battery ... 49.00 m
CP-12 cigarette lighter cord ... 29.00 v
CP-13L cigarette lighter cord ... 29.00 w
GP-22 GPS receiver ... 269.95 mf
IC-P4AT 440 mhz ht w/UT-50 ... 239.95 m
IC-T21A 2m HT w/440MHz receive ... 229.95 mf
IC-U400 uhf commercial mobile ... 404.95 m
IC-W21AT 2M/440mhz HT/ttp ... 359.95 w
IC-Z1A 2m/440MHz ht w/remote mic . 394.95 mf
IC-2000H 50W 2M FM mobile ... 242.95 m
IC-2700H 2m/440MHz FM mobile ... 499.95 m
IC-4SAT 440MHz FM HT ... 319.95 c
IC-706 HF/6/2m mobile xcvr ... 1199.95 cfv
IC-707 100W HF xcvr ... 679.95 m
IC-736 100W HF/6M xcvr ... 1649.95 m
IC-775DSP/ICO HF xcvr/ps/IF dsp ... 3152.95 w
IC-Z1A 2m/440 FM HT w/detach mic ... 399.95 m
M-5 5W marine band HT ... 299.95 m
M-56 25W marine band ... 299.95 m
RP-4020 25W 70CM repeater ... 1499.95 mf
R1-15 .1MHz-1.3GHz hand held rcvr ... 379.95 mf
R100-11 .1mhz-1.856GHz rcvr ... 593.95 v
R7100-12 25mhz-2Ghz(blkd) rcvr ... 1234.95 f
SM-8 deluxe desk mic ... 129.95 f
SP-7 small external speaker ... 61.20 w
UT-84 tone squelch IC-2700H ... 72.00 v

JPS
NF-60 Auto DSP audio notch filter ... $134.95 m
NIR-10 Dlx noise/notch DSP filter ... 249.95 mc

JRC
NBD-520 dc p/s for JST135 NEW! ... $199.95 m

KANTRONICS
HOSTMASTER-64 software ... $53.95 m
KPC-9612 9600baud controller ... 179.95 v

KENWOOD
AT-50 External HF auto tuner ... $296.95 m
DFK-4 13' separation kit TM742/942 .. 49.95 f
DRU-3 digital record unit ... 116.95 m
DSP-100 DSP unit for TS-450/850S ... 299.95 v
HMC-2 headset vox/ptt for ht's ... 64.95 m
MC-45DM hand mic ... 71.95 fv
ME-1 memory expansion ... 35.95 v
PB-18 1100mah 7.2v battery ... 69.95 v
PB-32 600mah 6v battery ... 58.50 v
R-5000 swl receiver ... 949.95 f
SM-230 monitor scope TS-850/950 ... 979.95 f
SW-2100 1.8-30MHz 2KW meter ... 134.95 mv
TH-22AT 2M 3W FM HT ... 233.95 mf
TH-79A(D) 2M/ 440 2.7W HT ... 404.95 v
TM-241A 2m 50W mobile xcvr ... 299.95 m
TM-733AHKBLD 2m/440 FM mobile ... 589.95 w
TM-942A 2m/440/1.2Ghz mobile xcvr 989.95 v
TS-50S Compact 9 band hf xcvr ... 929.95 m

KENWOOD — Special
TS-450S 9 band hf xcvr ... 1139.95 f
TS-870S DSP xcvr/tuner ... 2538.95 m
TS-950SDX HF xcvr/tuner w/DSP ... 3599.95 v

KLM
CS-2 circularity switch ... $69.95 m
KT-34A 20-15-10M beam antenna ... 429.95 m

MFJ
1020A indoor active rx antenna ... $67.95 w
1022B active rx antenna ... 71.95 m
1022 active rx antenna ... 35.95 m
1040B Deluxe receiver preselector ... 89.00 m
114 large LED clock ... 35.95 m
1214PC Multimode interface for IBM .. 124.95 f
1270C packet TNC ... 99.95 m
1272B TNC/Mic switch ... 34.95 m
1272BYV TNC/Mic switch KAM/vhf ... 34.95 m
1272M TNC/Mic switch MFJ/PK900 ... 34.95 m
1274C TNC ... 109.95 m
1278B packet/pactor multi-mode ... 239.95 m
1287BD 5 1/4 multicom disk only ... 35.95 m
1289 5 1/4 multicom software ... 54.95 m
1289M multicom software IBM ... 49.95 m
1290 multicom software AMIGA ... 34.95 m
1292 Video digitizer for IBM ... 159.95 m
1621 40-10M vertical portable ant ... 62.95 m
1786 Super Loop antenna ... 219.95 m
4110 portable power supply ... 35.95 m
4114 rechargeable holder MFJ xcvr ... 58.95 v
432 voice keyer unit ... 89.95 m
47B 128K memory for 1270/1274 ... 59.95 m
407C Deluxe electronic keyer ... 52.95 m
490 keyer/paddle combo ... 134.95 f
492X menu driven keyer ... 94.95 m
624D phone patch ... 76.95 m
704 1KW low pass filter ... 35.95 v
722 SSB/CW notch filter ... 67.00 mw
726 plug in audio filter MFJ xcvrs ... 26.95 m
815B 160-6m cross needle meter ... 62.95 v
8621 Vhf data radio 145.01 mhz ... 99.95 m
9020 5w 20m cw xcvr ... 149.95 m
924 440MHz 300w tuner/swr/wattmeter ... 62.95 v
945D 300w tuner/switch/balun ... 79.95 m
949E 300w tuner/switch/balun ... 116.95 f
956 LW/MW/SW preselector/tuner ... 34.95 v
962C 1.5KW PEP antenna tuner ... 199.95 m
986 3KW PEP antenna tuner w/roller .. 239.95 m
989C Dlx 3KW PEP roller tuner ... 269.95 m

MIRAGE
B-34G 2m 3.5/35W amlifier ... $89.95 m
MP-3 420-450MHz 500W PEP meter .. 214.95 m

OPTOELECTRONICS
SCOUT/400 10-2800mhz counter ... $399.95 m

OUTBACKER
PERTH 7.5' mobile antenna ... $239.95 m

PANASONIC
RF-B45 SWL portable receiver ... $152.95 m

PERIPHEX
BP-85S battery (ICOM 24AT series) ... $68.95 v
EBP-22S battery (ALINCO 580/180) ... 58.95 v
FNB-27 12v/600ma battery ... 54.00 m
PB17 12V/800 ma battery Kenwood ... 44.95 m

RACOM
700 automatic morse code identifier ... $82.95 m
700PC programming kit ... 27.00 m

RANGER
RCI-2950 25W FM/SSB 10M xcvr ... $233.95 m
RCI-2970 100W FM/SSB 10M xcvr ... 339.95 mf
RCI-6060 marine xcvr ... 149.95 mc
RCI-7000 marine xcvr ... 144.95 w
RCI-8000 marine ht ... 149.95 m

RF CONCEPTS
2/70H 2/200-20/100W amplifier ... $639.95 v

SANGEAN
ATS-202 SW receiver ... $79.95 m
ATS-800 SW receiver ... 69.95 f
ATS-808 SW receiver ... 134.95 v
ATS-818 SW receiver ... 159.95 vm
ATS-818CS SW receiver w/cassette ... 179.95 m
DT-200V receiver ... 59.95 m

SGC
55-27 SG-303 1.8-30 9' whip & mt $404.95 m

SHURE — Special
526T SERIES II desk mic ... $99.95 m

SONY
ICF-2010 portable SW receiver ... $319.95 m
ICF-SW100S portable SW receiver ... 349.95 m
ICF-SW1000T portable SW rec/cass ... 499.95 m
ICF-SW30 portable SW receiver ... 89.95 mw
ICF-SW55 portable SW receiver ... 314.95 m
ICF-SW7600G port SW receiver ... 179.95 vm
ICF-SW77 deluxe portable SW rcvr ... 399.95 m
IPS-360 GPS unit ... 299.95 m
IPS-760 deluxe GPS unit ... 599.95 m

STANDARD
C-168A 2M FM HT ... $279.95 m
C-188A 2M FM thin HT ... 254.95 mv
C-288A 220MHz FM HT ... 328.95 m
C-508A 2m/440MHz FM mini-HT ... 259.95 m
C-558A 2m/440MHz FM HT ... 514.95 fm
C-5608DA 50w 2m/40w 440 mobile ... 629.95 c
C-5718DA 50/40w 2m/440 mobile ... 649.95 m
CSA-181A desk rapid charger ... 109.95 m

UNIDEN
BC-177XLT 16ch scanner ... $99.95 f
BC-220XLT 200ch pocket scanner ... 199.95 m
BC-3000XLT hand held scanner ... 339.95 m
BC-350A 50ch mobile scanner ... 89.95 mv
BC-760XLT 100ch mobile/base scan . 189.95 f
HR-2510 25W 10M mobile ... 199.95 m
MC-790 marine mobile xcvr ... 179.95 m

UST (Truck ship/milw pick-up only)
HDP service platform/HDX555 NEW! .$399.95 m ..

VALOR
LP-30 1.5KW low pass filter ... $44.95 v

VECTRONICS
PM-30UV meter ... $74.95 mv
VC-30UV mini-meter ... 69.95 m
VC-300D meter ... 169.95 m
VC-300M meter ... 109.95 m
HFT-1500 1.5KW antenna tuner ... 349.95 v

VIBROPLEX
145 BRASS RACER iambic paddle ... $59.95 mw
100 ORIGINAL PRESENTATION ... 224.95 v
110 ORIGINAL STANDARD bug ... 124.95 m

WILMORE
1365 24-12V 10a converter ... $69.95 m

YAESU
DVS-2 digital voice recording unit ... $259.95 m
FC-10 external coax fed auto tuner ... 314.95 v
IF-232C RS-232 interface ... 107.95 m
FNB-14 1000ma 7.2V battery ... 63.95 v
FNB-26 1000ma 7.2V battery ... 72.00 w
FNB-33 1200ma 4.8V battery ... 74.95 m
FNB-38 600ma 9.6V battery ... 74.95 v
FP-757HD heavy duty power supply ... 239.95 m
FRC-4 pager unit ... 40.50 m
FT-10/41BA16D 5W 2m ht ... 278.95 mv
FT-10/41BA16S 5W 2m 99ch DVR HT .. 288.95 f
FT-1000MP 9 band EDSP hf xcvr ... 2699.95 m
FT-2200 50W 2M FM mobile w/FTS27 .. 292.95 v
FT-2500M 50W 2M FM mobile ... 329.95 m
FT-3000M 70W 2M FM w/wide rx ... 439.95 m
FT-50R/40B 2m/440 2W HT ... 299.95 m
FT-51R 2W 2m/440 HT ... 449.95 m
FT-51R/HP 2m/440 5W HT ... 469.95 v
FT-5100 2m/440 50/35w mobile ... 589.95 f
FT-5200 2m/440 50/35w mobile ... 539.95 c
FT-736R 2m/70cm FM/SSB xcvr/ps ... 1749.95 f
FT-811R 440 HT ... 179.95 fm
FT-840 100W HF xcvr ... 809.95 v
FT-900 HF 12V xcvr ... 1124.95 m
FT-990 HF xcvr/tuner/ps ... 1979.95 f
FT-990DC HF xcvr/tuner ... 1664.95 mw
FT-911 1.2ghz hand held xcvr ... 421.95 v
LL-5 phone patch for SP-6 ... 134.95 m
MD100A8X desk mic FT1000MP ... 116.95 m
MH-15D8 microphone ... 72.00 w
MR KIT-1 rack mount for VXR rptrs ... 179.95 m
MW-2 remote mic ... 125.95 m
NC-29 rapid charger FNB12S/14/17 ... 64.95 f
NC-50 1-hr dual slot quick charger ... 98.95 v
SP-6 external speaker/filter ... 152.95 v
VXR-5000UCDC 440 25W repeater ... 1099.95 m

AES® Consumer Equipment Price List

CORDLESS PHONES

COBRA (COB)

	Reg	Sale
CP-706 Ivory cordless ph w/scrambler .....Dm	$129.95	79.95
CP-912 900MHz 100ch dig spread spectrum	369.95	249.95

UNIDEN (UNI)

CT-301 Cordless phone .....Dmwf	$ 69.95	49.95
DX-3555 25 ch scrambled dual pad cordless	159.95	109.95
DX-4519 25 ch scrambled cordless phone	129.95	89.95
EXP-9100 900 MHz digital spread spectrum .	459.95	289.95
XC-3510 25 ch cordless phone	109.95	79.95

CB RADIO

Antenna Specialists (ASP)

MR125 Rooftop antenna, spring, 3/8" hole	$ 41.95	
MT178 Magnet mt antenna	49.25	
M-906 Cellular style on glass CB antenna	49.95	

COBRA (COB)

7 Ultra AM Mobile	$ 62.95	49.95
18 Ultra AM Mobile	109.95	69.95
19DX AM Mobile	79.95	49.95
19LTD II AM Mobile	89.95	59.95
21LTD WX AM Mobile w/WX	119.95	89.95
25LTD (25 Classic) AM Mobile	139.95	99.95
25LTD WX AM Mobile w/WX	179.95	109.95
29LTD (29 Classic) AM Mobile	189.95	129.95
29LTD WX AM Mobile w/WX	219.95	139.95
HH-70 AM Remote	169.95	109.95
93LTD WX AM Base w/WX/tone alert	189.95	129.95
148GTL SSB/AM Mobile	329.95	199.95
148F GTL SSB/AM Mobile	369.95	249.95
2010GTL WX SSB/AM Base w/WX	659.95	429.95
HH-35 AM portable CB Xcvr	89.95	69.95
HH-40 5w 40 ch 27 MHz CB walkie-talkie	159.95	99.95
AT-60 Trunk lip/roof mt antenna	19.95	
AT-70 Magnet mt antenna	24.95	

UNIDEN (UNI)

PC-66XL AM Mobile	$129.95	89.95
PC-76XL AM Mobile	179.95	119.95
PC-76XLW AM Mobile w/WX alert	189.95	129.95
PRO-340XL 40 ch portable w/rubber ant	89.95	59.95
PRO-501XL AM Mobile	49.95	39.95
PRO-510XL AM Mobile	69.95	44.95
PRO-510AXL AM Mobile w/magnet mt ant	69.95	49.95
PRO-520XL AM Mobile	89.95	59.95
PRO-538W AM Mobile w/WX	109.95	74.95
PC-122XL SSB/AM Mobile	199.95	129.95
Grant-XL SSB/AM Mobile	269.95	169.95
Washington SSB/AM Base	349.95	249.95
ESP-25 External speaker	20.89	

SCANNERS

AOR (AOR)

AR-2700 .5-1300MHz hand Rcvr/cell blkd	$499.95	389.95
SC-2700 Soft case for AR-2700	24.95	
AR-3000A .1-2036MHz dlx w/SSB/cell blkd ...	1329.95	1049.95
MM-1 Mobile mounting bracket; AR-3000A	24.95	
SDU-5000 Spec disp; AR3000A/Icom Base .	1199.95	899.95
AR-8000 .5-1900MHz hand w/SSB/cell blkd ..	799.95	599.95
SAC-8000 Opt Scout/AR8000 connect kit ...	29.95	
SC-8000 Soft case for AR-8000	24.95	

Antenna Specialists (ASP)

MONR1 H or U low profile roof mt monitor ant .	$ 23.50	
MON-9 H & U magnet mt monitor antenna	35.25	
MONR31 L/H/U gain ground plane base ant ..	55.25	

BMI (BMI)

Nitelogger II Auto recorder activator	$ 69.95	
RC-1A Impedance matching patch cord	19.95	

CHANNEL MASTER (CHA)

5094A 4-band base Monitenna ant w/50' coax .	$ 47.95	39.95
5095A 5094A ant/5' tri-mast/50' coax .Dmwfv	59.95	49.95

COBRA (COB)

SR-11 10 ch prog pocket scanner .....Dmf	$219.95	59.95

GROTHE (GRO)

VS-2 Emergency vehicle siren	$ 99.00	89.95

GROTHE - continued

	Reg	Sale
VS-2L/A Window mt siren/amber light	249.00	
VS-2L/B Window mt siren/blue light	249.00	
VS-2L/R Window mt siren/red light	249.00	
VS-2LS/A Window mt siren/amber strobe	299.00	
VS-2LS/B Window mt siren/blue strobe	299.00	
VS-2LS/R Window mt siren/red strobe	299.00	
VS-3 Volunteer vehicle PA/horn w/spkr	159.00	129.95
VS-4 P/A emergency vehicle siren w/spkr	169.00	139.95

MAXON (MAX)

WX-70 Weather monitor w/alert	$ 69.95	39.95

Monitor America (MON)

Monitor America Scanner frequency book	$ 29.95	

Radio Control Systems (RCS)

ScannerWear Control software for scanners .	$ 99.95	

UNIDEN BEARCAT (UNI)

BCT-2 Pre-prog warning scan/AC ps .....Dmf	$239.50	99.95
BC-147XLT-1 16 ch prog scanner/instant WX ..	169.95	99.95
BC-148XLT-1 20 ch prog scanner/WX alert	179.95	99.95
BC-178XLT 100 ch prog scan/air/WX alert	249.95	149.95
BC-350A 50 ch prog/service search w/AC ps .	199.95	119.95
BC-560XLA 16 ch prog scanner/AC ps	169.95	99.95
BCT-7 Pre-prog warning scan/air/800/AC ps .	319.95	189.95
BCT-10 Pre-prog highway info sys scanner ...	369.99	179.95
BC-700A 50 ch prog/svc search/800/AC ps ...	299.95	169.95
BC-760XLT 100 ch prog/svc search/800/AC ps	369.95	219.95
BC-002 CTCSS tone board; BC-760XLT	51.89	
BC-003 Switch box for BC-002	10.70	
BC-004 RF preamp for BC-760XLT	27.80	
BC-860XLT 100 ch prog scanner/air/800	319.95	189.95
BC-890XLT 200 ch 956 MHz scanner/WX alert	439.99	259.95
BC-002 CTCSS tone board; BC-890XLT	51.89	
BC-9000XLT 500 ch 25MHz-1.3GHz	769.95	439.95
BC-005 CTCSS tone board; 8500/9000XLT .	37.89	
BC-60XLT 10 ch prog pocket scanner .Dmwfv	169.95	79.95
BC-60XLT-1 30 ch prog pocket scanner	169.95	99.95
AD-100 AC adapter/batt cgr	16.89	
PS-001 DC power cord	8.89	
BC-80XLT 50 ch prog pocket scanner/800	309.95	169.95
BP-70 Extra battery for BC-70XLT .....Δm	27.80	
AD-140 Extra charger; BC-100XLT/200XLT	13.29	
BP-200 Extra battery; BC-200XLT	32.82	
BP-205 Extra battery; BC-100XLT	37.23	
BC-120XLT 100 ch prog pocket w/aircraft	249.95	149.95
BC-220XLT 200ch prog pocket/800 MHz Dmwfv	439.95	219.95
BC-230XLT 200ch prog pock/air/800/xtra batt	439.95	249.95
SC-150B 100 ch black sport pocket/800	329.95	189.95
AD-70 Extra charger	13.49	
BP-120 Extra battery	18.29	
LC-120 Carrying case for BC-120/220XLT ..	19.59	
LC-150B Carrying case for SC-150B	19.59	
UA-502 Cig power cord	12.19	
BC-3000XLT 400 ch 25MHz-1.3GHz pocket ...	699.95	399.95
BP-2500 Extra batt; BC-2500/3000XLT	32.49	
LC-2500 Carrying case; BC-2500/3000XLT	19.95	
NPD-001 National frequency book	14.95	
RFD-001 IN/IL/KY/OH/MI/WI freq book	14.95	

RADAR DETECTORS

COBRA (COB)

RD-3170 Deluxe superhet detector .....Dm	$299.95	49.95
RD-4120 Super heterodyne detector .....Dm	209.95	29.95

LAND MOBILE

COURIER (COU)

Procom* 2w VHF FM hand-held/batt/cgr Δmwf	$199.95	119.95
AUC-12 Cig lighter charger adapter ...Δmw	12.00	7.95
CAT-12 Leather carrying case .....Δmw	22.50	16.95
RB-7 Extra nicad battery pack .....Δmw	32.00	29.95
*Freq **A** (red) - 151.625 MHz *Freq **B** (blue) - 154.570 MHz		
*Freq **C** (green) - 154.600 MHz		
M-54 5w 4ch VHF FM hand-held/batt/cgr/151.625	299.95	199.95
M-510 5w 10ch synth VHF FM hand-held	399.95	269.95
MU-510 5w 10ch synth UHF FM hand-held	439.95	299.95
CCK-510 Cloning cable for M-510/MU-510	18.75	

COURIER - continued

	Reg	Sale
U-22* 2w 2ch UHF FM hand-held/batt/cgr Dmf	279.95	149.95
*Frequency **A** (white) - 462.575 MHz		
*Frequency **C** (orange) - 462.675 MHz (REACT)		
*Frequency **E** (yellow) - 464.550 MHz (business radio svc)		

ICOM (ICO)

IC-F10-1 2w 146-174MHz 24 ch HT	$495.00	399.95
IC-F20-2 2w 440-470MHz 24 ch HT	559.00	449.95
AD-54 Charger adapter; BM113U; F10/F20	34.00	
BM-113U Trickle charger; F10/F20	26.00	
EX-1690 PC prog software; F10/F20	40.00	
OPC-478 PC prog cable; F10/F20	46.00	
OPC-474 HT - HT cloning cable; F10/F20 ...	15.00	
A-3 5w PEP aircraft handheld	655.00	499.95
A-22 5w PEP compact Navicom air handheld	720.00	549.95
A-200 Panel mt aircraft Xcvr special order	1069.00	899.95

MAXON (MAX)

MX-49FX 5 ch 49 MHz ear mic Xcvr	$ 89.95	49.95
MX-49HX 5 ch 49 MHz euro-design headset Xcvr	89.95	49.95
MX-49SX* 49 MHz euro-design headset Xcvr	59.95	29.95
*Available in channels **A**, **B**, & **E**; limited qty's in channel **D**		
PC-10* 49 MHz hand-held/PTT/VOX headset	59.95	34.95
*Available in channels **A**, **B**, & **E**		
PC-50 5ch 49MHz hand-held/PTT/VOX headset	79.95	49.95
GMRS-10 100mw 462.625 MHz handheld	119.95	79.95

RANGER (RAN)

RCI-1000* 1w 2ch VHF FM hand-held/batt/cgr	$199.00	139.95
BT-10 Extra nicad batteries	29.95	24.95
DG-10 Desk charging stand (use wall cgr) .	14.95	
LC-1000 Leather case	24.95	19.95
MT-17 CTCSS encoder/decoder	54.95	49.95
SRA-106A Speaker/mic .....Dmf	44.95	36.95
SRA-107 Speaker/mic	44.95	39.95
***A** (red) - 151.625 & 154.570 MHz		
***C** (green) - 154.600 & 154.570 MHz		

MARINE VHF FM RADIO

ICOM (ICO)

M-2 5w synthesized marine hand-held .Dmwf	$659.00	269.95
IC-M10A 3w marine hand-held w/AA holder ..	347.00	219.95
GP-22 GPS unit w/OPK-4 antenna kit .....†	500.00	299.95
M-710 (01) 150w HF marine SSB ..spec order	2025.00	1369.95
AT-130 HF marine auto ant tuner spec order	750.00	529.95

KENWOOD (KEN)

TKM-707 150w HF marine SSB Xcvr spec order	2249.95	1499.95
MAT-100 HF marine auto ant tuner spec order	1049.95	699.95

MAGELLAN (MAG)

GPS-2000 GPS receiver	$279.99	199.95
GPS-4000 GPS receiver w/carrying case	349.99	249.95
00-69007-000 External power module	49.99	
Meridian XL GPS/track plotter/detach ant/case	399.00	299.95

MOTOROLA (MOT)

HSN9690 Hailer speaker .....Δm	$ 40.00	14.95

RANGER (RAN)

RCI-6060 25w VHF marine Xcvr w/scan	$279.00	169.95
RCI-8000 5w VHF marine handheld	279.00	169.95

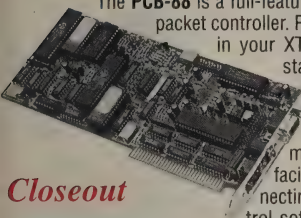
UNIDEN (UNI)

MC-535 25w 90 ch VHF marine Xcvr	$199.99	139.95
MC-635 25w 90 ch VHF marine Xcvr w/scan .	249.99	149.95
MC-795 25w 90 ch VHF marine Xcvr w/prog ..	299.99	169.95
HH-979 5w 90 ch marine hand-held/scan	259.99	159.95
HH-980 5w 90 ch deluxe marine hand-held ..	399.99	249.95

SHAKESPEARE (SHA)

396-1 3 db, 5' antenna, less mount	$104.95	59.95
497 6 db, 8' antenna, less mount	86.50	49.95
5202 6 db ant w/chrome ferrule, less mt	130.50	69.95
5206-C Economy 8' ant w/chrome ferrule, no mt .	56.95	39.95
366H Chrome zamac ratchet mount	41.95	29.95
495 White plastic lift & lay mount	20.95	14.95
420 3 db, 5' ant w/fold-down mount	94.50	59.95
420-M-2 3 db, 5' mast mount antenna Δmwf	113.50	19.95
5204-8 Combo CB/VHF marine 8' antenna	188.95	99.95

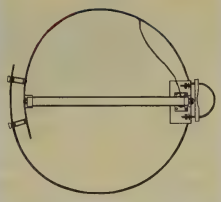
AEA PCB-88
HF/VHF Packet Controller Computer Board



Closeout

The **PCB-88** is a full-featured, 1200 bps, IBM compatible, HF/VHF packet controller. Plug it into any 8 or 16-bit expansion slot in your XT, AT or compatible PC. It comes with standard AEA TNC features, plus–true DCD, modem disconnect header for easy hook-up of other modems. AEA's extensive Host mode, KISS command, an 18K Mailbox, full MailDrop facilities, node features, and selective connecting and digipeating. PC PakRatt-88 control software is included. The PCB-88 can get DC power direct from the computer's bus lines or, the included 12V DC adapter can be used which will allow the PCB-88's MailDrop to remain active and receive messages when the computer is off..... **CLOSEOUT $99.95**

New! AEA HALO-6
Low Cost High Performance 6M Loop Antenna



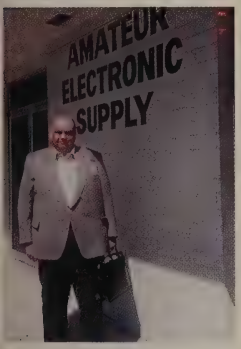
The **AEA HALO-6** is designed for the new Technician Code-FREE licensee who wants the experience of working real ionospheric skip DX on 6-meters. It will also allow the long time radio amateur (who has never sampled this mysterious band) the opportunity to use his new multi-band transceiver) such as the IC-706 on 6 meters at the lowest possible cost.

Features: Highly efficient loop design, tune entire band • Easy to assemble, mount and tune • low angle of radiation–excellent for DX • Omni-directional–excellent for spotting DX • Handles 750 watts, stack two for maximum legal power and 3dB omni-gain • DC shorted feed for maximum lightning protection • Portable, low profile (27") diameter loop • Horizontal or vertical polarization mount.....**$69.00**

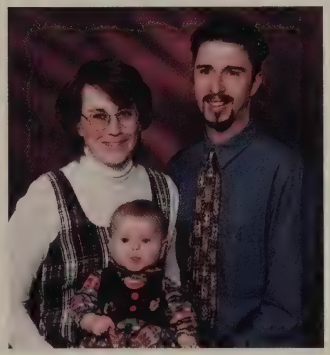
See the complete AEA Catalog p.p. 44 thru 67 • Please note: p. 49 (DSP-232 specs) & p.65 (IsoLoop specs) have been transposed

Terry, W9DIA – Baby Picture

Ray, K9KHW and wife Margaret at the annual Las Vegas SAROC Hamfest in the early 70's.



Terry, W9DIA Founder & Owner of AES®– King of Traders, etc. Latest Photo!



What ever happen to that little girl that used to follow Terry around at hamfests, carrying his cans of diet Coke and bags of potato chips?

She is now Christina Sterman Hack, now living in St. Louis, shown left with her husband George and their daughter Caitlin.

Yes folks, Terry, W9DIA is a Grampa now!

Sterman Spy Stores...

Watch for openings of Sterman Spy Stores in several locations around the country. In this age of electronic sophistication, there are a lot of neat devices that are of great interest to hams and SSS will have them available. Things like secret monitoring and recording equipment, miniature video cameras mounted in smoke detectors, portable radios, and other disguised items. We'll have infrared cameras, parabolic microphones and personal protection devices. Some AES® stores may also carry some of these items.

Dayton Area Hams... If you like Seafood, you should check out the NEW Seafood Restaurant at the Dayton Airport Inn. Tell them Terry sent you!

QSL CARDS • In previous catalogs our Sterman Printing Division offered a custom QSL Card printing service. At this time that division is under going reorganization and we have suspended QSL card production for the time being. Those of you who allowed us to print your cards in the past, we thank you. Watch for QSL card availability in future issues.

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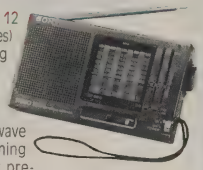
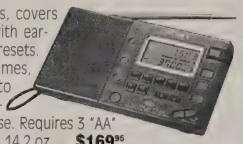
SONY



▶**ICF-SW10** Compact and convenient, easy to use. 12 bands–covers AM broadcast, FM (stereo with headphones) and 9 shortwave bands. Easy analog tuning with tuning indicator for accuracy. 6"w x 3½"h x 1¼"d, 12 oz.... **$49.95**

▶**ICF-SW30** 12 bands. Covers AM, FM; stereo with headphones and 10 shortwave bands. Automatic Scan Tuning in1 KHz steps,15 memory presets. Clock has world and local time display, alarm and sleep timer functions. Requires three "AA" batteries or external 4.5V DC. 4⅜"h x 6¾"w x 1⅞"d **$99.95**



▶**ICF-SW33 WORLD BAND RADIO** 13 bands, covers 0.5–26.1MHz AM and 87.6–108MHz FM stereo (with earphones). Scan tuning and 17 station memory presets. World time clock displays 38 city names and times, and has five time presets, sleep timer and auto shut-off. News/Music tone control, battery indicator. Supplied with telescopic antenna, carrying case. Requires 3 "AA" batteries or external 4.5V DC. 6⅝"w x 3¾"h x 1¼"d, 14.2 oz **$169.95**

▶**ICF-SW55 WORLD BAND RECEIVER** Similar to ICF-7600, but improved. Factory preset name tuning provides access to most listened to broadcasts. Tuning methods: preset station, direct, scan or rotary dial. 125 memories. Requires 4-"AA" batteries or external 6V, AC adapter included.4¾"h x 7⅝"w x 1⅝"d, 1½ lbs..... **$349.95**

Front view
Rear view

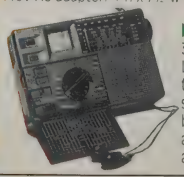
▶ **ICF-SW1000T WORLD BAND RECEIVER** Features a full-featured Stereo Cassette Recorder and Player built in to the back .Provides 1 kHz step tuning LW/MW/SW/FM/SSB reception with synchronous detection via 10 key direct access and 32 memory presets. FM stereo reception via headphones. Built-in clock with alarm and sleep timer Timer Rec/Play feature allows convenient time shift recording. Stereo microphone and headphones, active antenna and carrying case supplied **$569.95**

GRUNDIG

▶**SATELLIT 700** Covers 1.6-30MHz. AM, FM and LW bands, 512 memories. FM stereo with headphones or external speakers (not included). Direct frequency entry via backlit keypad, SSB & synchronous detectors, wide/narrow filters. Dual clocks and turn-on and sleep timers, 8 character memory bank labeling with 2,048 memories possible. LCD multi-function display, Built-in telescoping, ferrite antenna and ext. antenna connector, Operates from 110/220V AC, 4-"D" alkaline or nicads; built-in charger. 12"w x 7"h x 2¾"d, 4 lbs ..**$449.95**

▶**YACHT BOY 400** Covers 1.6–30MHz, all SW bands + FM-stereo (with earphones), AM and long wave. Direct keypad frequency entry or scan tuning with 40 memories. SSB reception with fine tuning control, high-low tone switch. Tilt stand, telescoping antenna. Multi-function backlit LCD display shows dual zone 24 hour time, frequency, band and signal strength. Dual selectivity. Automatic turn-on and sleep timer. Includes stereo earphones, external reel-up antenna for SW, and carrying pouch. Requires 6 "AA" batteries or ext. 9V DC. 4½"h x 7¾"w x 1⅜"d, 1½ lb **$199.95**

▶**YACHT BOY 305** Continuous SW coverage from 2.3 to 21.85MHz without gaps. Includes all existing SW bands plus FM-stereo, and Medium wave. 30 memory presets. Direct entry digital tuning, auto-scan and up or down slewing. Large cavity speaker enclosure for true rich sound. Requires 2-"C" batteries or external 110V AC adapter. 4"h x 7½"w x 1½"d, <1 lb **$129.95**

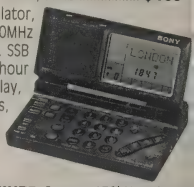


▶**TRAVELLER II** Covers AM/FM broadcast, the 19, 25, 31, 41, 49M SW bands and 5.8-15.6MHz. Multi-function LCD display, pushbutton and slide controls, tuning indicator. Clock with travel alarm.and World Time selection switch – select a city and read the time! Requires 3 "AA" batteries (not included). Telescoping and built-in ferrite antenna. 2" speaker, jacks for earphones and external. AC adapter (not included). 5½"w x 3½"h x 1¼"d **$89.95**

SONY

▶**ICF-2010** Covers 150KHz-30MHz, 76-108MHz and 116-136MHz MHz; AM/FM/SSB/CW. Tunes manually or by keyboard entry, automatic scanning, memory scan or 32 memory presets. LCD display, switchable IF bandwidth, fine tune. 12/24-hour clock with alarm, programmable timer and sleep timer. Telescoping antenna and built-in ferrite bar antenna, Nice sounding 4" speaker. Record, earphone, external antenna and external DC power jacks. Operates from 3-"D" and 2-"AA" batteries, 12V DC, or 110V AC adapter. 6½"h x 11⅜"w x 2⅜"d, 3¾ lbs **$359.95**

▶**ICF-SW77** Same coverage (except for air band) and features as ICF-2010. Stores up to 100 stations (162 frequencies), allows stations to be selected by name and is capable of storing broadcast schedules. Programmable six-character Station Name Display, fine 50 Hz tuning resolution, FM stereo with headphones, bass and treble controls. 10⅞ "w x 6⅞"h x 1⅞ "d, 3¼ lb **$469.95**



▶**ICF-SW100S** *Incredible!* - the size of a Pocket Calculator, but loaded with advanced features. Covers 150kHz to 30MHz and the 76 to 108 MHz FM band; stereo with earphones. SSB reception, 100 Hz tuning. steps, 50 memory presets, 24 hour clock/timer, world time computer, station names display, illuminated LCD display. AC adapter, stereo earphones, active antenna, soft carrying case, station directory and manual are included. 4⅜"h x 2⅞"w x 1⅛"d..... **$349.95**

▶**ICF-SW7600G WORLD BAND RECEIVER** Covers 150kHz–30MHz and 76–108MHz FM (stereo with earphones). Synchronous AM detection, SSB and FM stereo (headphones). 10-key Direct Access Tuning™ and 20 station presets, LCD display. Tone control, external antenna and record jacks, clock/timer with sleep and standby functions, tilt bracket. Includes compact reel antenna, and carrying case. Requires 4 "AA" batteries. 4½"h x 7½"w x 1¼"d, 1½ lbs **$199.95**

PANASONIC

▶**RF-B45 PORTABLE RECEIVER** Covers (LW) 144–288kHz, (MW) 520–1610KHz, (SW) 1.62–29.99MHz and (FM) 87.5–108MHz. Capable of SSB reception. Six Way multi-tuning system: 18-station preset memory, frequency direct access, meter band access, up/down manual tuning, memory search with signal strength and auto tuning. LCD display, quartz clock with sleep timer, high/low tone selector, DX/Local selector. Deluxe carrying case, ext. antenna wire for shortwave reception, hand strap and earphone included. Requires 4 "AA" batteries. 4¾"h x 8½"w x 1"d, 1.6 lbs... **$169.95**

YAESU

▶**FRG-100B HIGH PERFORMANCE COMMUNICATIONS RECEIVER**

Covers 50KHz to 30MHz with CW, SSB, AM and optional FM modes. 50 fully-tunable memory channels store frequency, mode and filter selection; two additional memories provide band edge information used in scanning function. Multi-function scanning (memory, band selectable group, priority) with carrier or time-delay resume enables convenient searching for new stations, or scanning within a known band. Twin 12 and 24 hour programmable clocks with on/off-timer and sleep-timer. Yaesu CAT system for PC control. 9.3"w x 3.6"h x 9.5"d, 6.6 lbs. **$619.95**

ICOM GP-22

Global Positioning System • $299.95 w/OPK-4 Antenna Kit SPECIAL

A tiny hand-held earth station receiver with easy-to-read digital display uses precision information from up to five earth-orbiting satellites to show latitude and longitude to within 300 feet–World wide!

- Easy to use
- Create a route
- Confirm your waypoints
- Track a direction or return to a precise location
- Compute estimated time of arrival (ETA)
- Display heading, speed, bearing and range
- Compute world/local time
- Rechargeable battery, 12V power cord, AC adapter

Shortwave Radios & Communication Receivers

ICOM

▶ICOM R-71A HF RECEIVER Covers 100kHz to 30MHz, all modes (FM is optional). Dual VFOs and direct keyboard entry, thirty-two tunable multi-function memories. RIT, notch, selectable AGC, noise blanker, tone, squelch, recording jack. Selectivity: 500 Hz, 2.3 kHz, 6 kHz, 15 kHz. Optional wireless remote controller and voice synthesized readout board. 110/220V AC operation. Opt. kit for 12V DC .11⅞"w x 4⅞"h x 10⅞"d, 16½ lbs .....**CLOSEOUT $1199.95**

▶ICOM R-7100-12 VHF/UHF SCANNING RECEIVER Frequency overage from 25-800 and 900-2000MHz. Dial and keyboard entry, 900 numbered memory channels. Multiple scanning capabilities with new window scan, all-mode squelch. Clock with timer, opt. TV receive .....**CLOSEOUT $1299.95**

DRAKE

▶DRAKE R-8A COMMUNICATIONS RECEIVER Covers 100kHz–30MHz + 33–55, and 108–174MHz with opt. VHF converter. Alpha-numeric display, dual VFOs; 440 memories; multiple-function scanning; AM, FM, RTTY, CW, SSB modes; 4 voice bandwidth filters; switchable preamplifier and attenuator; dual noise blanker; IF shift and notch. S-meter; fluorescent display; dual time zone clock; dual timers, dual antenna connectors. Single button access to mode and bandwidth selection. RS-232 control capable. Opt. interface software for MS-DOS computers and external speaker. Universal power supply. 13½"w x 5¼"h x 13"d, 13 lbs..... **$1079.00**

▶DRAKE SW-8 COMMUNICATIONS RECEIVER Covers 500kHz-30MHz, 87-108MHz FM broadcast (stereo at headphone jack), and the 116 to 136MHz aircraft band. 70 scannable memories. Standard and synchronous detection AM, and SSB reception on medium and shortwave bands. Direct frequency entry keypad, 0.5uV sensitivity, dual 6 or 4 kHz selectivity on AM, 2.3kHz selectivity on SSB. High contrast LCD readout provides 100Hz tuning accuracy. Dual-mode clock timer and AC adapter supplied or use opt. internal batteries. 11"w x 5¼"h x 11¾ "d, 10 lbs **$699.00**

KENWOOD

▶R-5000 COMMUNICATIONS RECEIVER Covers 100 KHz to 30MHz; 108 to 174MHz; optional VHF converter. SSB/CW/AM/FM modes. Dual VFO & keyboard frequency control, 100 multi-function memories. 6kHz and 2.5kHz SSB filters; accepts two more for CW, SSB or AM. Selectable AGC, variable attenuator, noise blanker, notch filter, IF shift. Dual 24-hour clocks and timer. Mute, record and headphone jacks. Optional VHF, external speaker, earphones, filters, voice synthesizer, computer control. 117V AC (13.8V DC kit is optional) **$1029.95**

MFJ

MFJ-8100K & 8100W SHORTWAVE REGENERATIVE RECEIVER

RF stage to really pick s up weak signals and it goes into regeneration smoothly without pops or dead spots. Stations all over the world come in loud and clear with just a 10 ft. wire. Listen to international SW broadcasts, hams on SSB and CW, WWV, RTTY, packet and more. Covers all or part of 75/80/49/40/30/20/25/22/19/17/16/15/13 meter bands in 5 bands. Smooth vernier reduction drive, bandswitch, volume and RF gain controls. Rugged aluminum cabinet. Uses a 9V battery or ext. DC. Two earphone jacks for Walkman-type earphones or plug-in speakers. 7"w x 2½"h x 6"d, 1 lb.

▶MFJ-8100K (kit) $59.95 • ▶MFJ-8100W (wired) $72.95

MFJ-8400K & 8400W 2 METER REPEATER MONITOR RECEIVER

Ideal second receiver, perfect for monitoring packet. Low noise, high-gain RF preamp gives 0.2 mV sensitivity. Dual-conversion superhet with sharp ceramic filters and crystal controlled 2nd oscillator. Antenna input and 19" whip. Vernier reduction drive, tune, squelch and volume controls, built-in speaker. MFJ's exclusive Tail-Free™ squelch eliminates squelch tails. Uses 9V battery, ext. 9-12V DC or 110V AC with opt. MFJ 1312B. 5"w x 2½"h x 4"d, 1 lb **▶MFJ-8400K (kit) $72.95 • ▶MFJ-8400W (wired) $89.95**

ICOM

▶ICOM R-100-11 BASE OR MOBILE RECEIVER Covers 500kHz–1800MHz (800–900MHz blocked); with FM, wide FM and AM modes. Keyboard and manual tuning, selectable steps,7 scanning. modes. 121 memories: 100 for frequency, mode, attenuator and preamplifier settings; 20 scan edge for 10 pairs of ranges for programmed scan and 1 priority. Three antenna inputs., 24-hour clock/timer. Telescoping ant., DC cord and mobile mount included. 13.8VDC @ 1A **$669.95**

▶ICOM R-1-15 GENERAL COVERAGE POCKET SCANNING RECEIVER It's less than 2 inches wide! – easily fits in your shirt pocket.Covers 100kHz to 800MHz and 900-1300MHz with FM, wide-FM and AM modes.100 memory channels. Programmed, memory, selected mode memory, and auto memory write scanning. Rotary tuning or direct keyboard entry, easy-to-read LCD display, 24-hour clock with timer, adjustable LCD contrast, signal indicator. Power-saver function, built-in nicad batteries; or use optional batteries, or 6 to 16VDC from external. source. AC wall charger/DC adapter and belt clip included. 1⅞"w x 4"h x 1½"d **$429.95**

SANGEAN

▶ATS-202 15 bands, AM, FM; stereo with headphones, 2.3 to 7.3 and 9.5 to 26.10MHz. MW 9k/10k switch. Manual and automatic station search, 20 station memory presets. Large backlit LCD display, clock with alarm and sleep timer features. Low battery indication. Requires two "AA" batteries or ext. 3V DC. 5¼"w x 3⅛"h x 1⅛ "d, 8.7 oz **$89.95**

▶ATS-303 13 bands, AM, FM;-stereo with headphones, 2.3 to 7.3 and 9.5 to 26.10MHz. MW 9k/10k switch. Selectable continuous tuning across frequency range and/or SW band. Time and frequency display, Auto/manual station search, 20 station memory presets. Large LCD display, tuning LED. Clock with alarm by radio or buzzer, adjustable sleep timer. Low battery icon. Requires 4 "AA" batteries or ext. 6V DC. 6½"w x 4⅜"h x 1⅜ "d,15 oz **$79.95**

▶ATS-818CS World Band Receiver with Programmable Cassette Recorder (left) 16 bands, continuous coverage 50kHz–30MHz. AM/SSB/CW/FM; stereo via headphones, 45 memory presets. Tuning methods: Direct input, auto or manual scan, memory recall, rotary dial. AM wide/narrow filter, tone/RF gain controls, signal strength/battery indicator. Programmable cassette recorder, play/record LED indicator, auto-stop feature. Clock with dual time display, alarm/sleep timer. Uses 7-"AA" batteries. Includes AC adapter, ext. antenna adapter. 11½"w x 7¾"h x 2¾"d, 5 lbs . **$229.95**

▶ATS-818 World Band Receiver All of the features as the ATS-818CS above, but without the built-in cassette recorder feature..... **$179.95**

▶ATS-909 FM-Stereo/MW/LW/SW PLL Synthesized Receiver 5 tuning methods: Direct Frequency, Autoscan, Manual, Memory recall and Rotary, 307 memories. Stereo via earphones, SSB reception. MW 9k/10k switch. AM wide/narrow filter and FM mono/stereo selector. Dual time system with 3 timers and adjustable sleep timer; cLock displays 42 world city times. RF gain/tone controls. Lock switch, recorder output jacks, battery and signal strength indicator .Uses 4 "AA" batteries or 6V DC; AC adapter included. 8½"w x 5⅜"h x 1⅜ "d, 1.9 lbs..... **$299.95**

▶DT-200V Broadcast & TV Band Receiver Fits in shirt pocket or clips to belt. Covers AM/FM (FM stereo via headphone), plus the audio portion of TV channels 2–13. LCD display, up/down tuning, auto-scan, 19 memories, auto shut-off. Built-in speaker. Belt clip, stereo earphones included. Uses 2-"AA" batteries. 4⅜" x 2⅝" x ¾", 5 oz.... **$69.95**

GRUNDIG

The Latest in Technology

Rated Best in Its Class.
Grundig's Yacht Boy 400 has received rave reviews from the shortwave press for combining a wealth of sophisticated features in one compact, portable package that doesn't cost a fortune. It incorporates features found on stationary shortwave systems that cost thousands, such as outstanding audio quality, precise 1 kHz increment tuning, up/down slewing, frequency scanning, signal strength indication, and single-sideband signal demodulation.

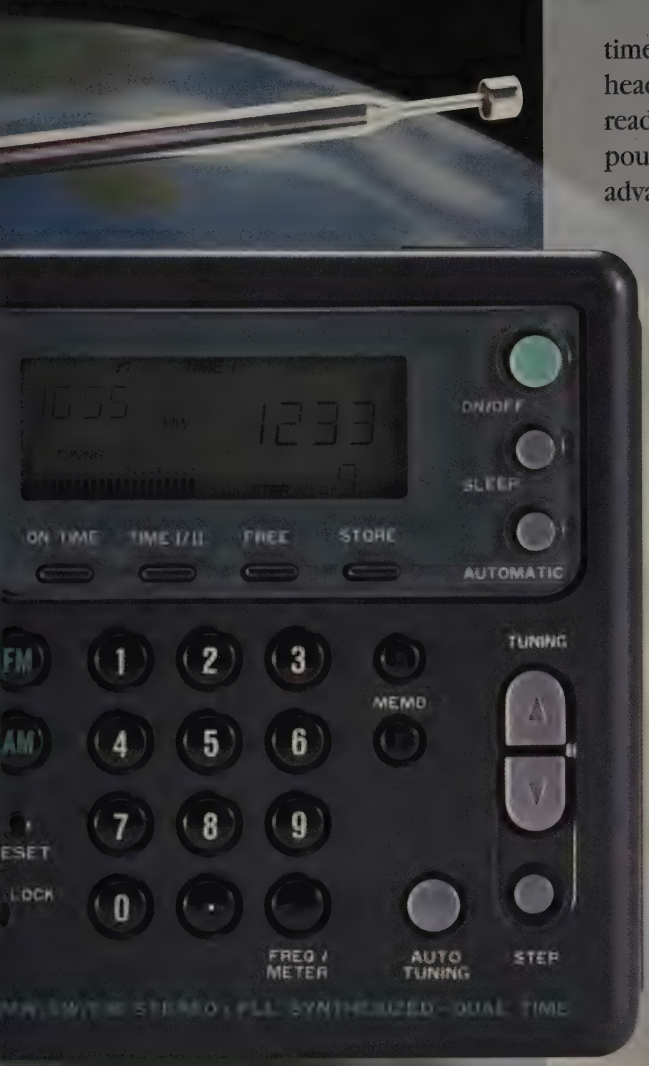
But the advantage mentioned most often in the YB-400 reviews was its ease of use for the novice listener. Following the included Grundig Shortwave Listening Guide, in moments you can be listening to foreign broadcasts beamed to North America.

Soon, you will be scanning the airwaves to tune in exotic music programs and sports events from faraway locales. The YB-400 even picks up shortwave amateur (ham radio) broadcasts and shortwave aviation/military frequencies (cockpit-to-tower communications). The possibilities for family fun, education, and enjoyment are boundless.

For travel or home use, Grundig adds a dual-time travel clock with snooze and sleep

Yacht Boy 400

The Best in Value



timer. FM band is stereophonic with your headphones. The lighted LCD panel is easy to read in the dark. Comes with a form-fitting pouch, integral telescoping antenna and advanced external antenna on a compact reel, carry-strap, batteries, earphones and complete instructions.

Made by Germany's Grundig.
World leader in shortwave radios, the 400 measures just 7-3/4"L x 4-1/4"H x 1-1/4"W; weighs only 20 oz. It slips easily into your carry-on for travel and fits on a nightstand, office credenza, or yacht cabin console. One-year warranty.

Grundig's Yacht Boy 400 Named Editor's Choice.
Passport To World Band Radio is regarded as the leading authority of the shortwave industry. Here's what their testing expert wrote about the Grundig Yacht Boy 400:

"Best performance for price size category, and among the choicest portables of any size, at any price."

"The 400's FM performance is right up there with the very best among world band radios."

THE GRUNDIG SATELLIT 700

GRUNDIG WORLD RECEIVER

THE ULTIMATE IN DIGITAL TECHNOLOGY

SATELLIT 700 — the latest and most sophisticated portable world receiver available! Featuring phased lock looped synchronous digital circuitry for seamless AM, FM, LW, and SW reception from 1.6 – 30 Mhz. From London to Lithuania to San Francisco, tune in the world easily with its unique digital or manual tuning. With Grundig, the world is at your fingertips.

GERMAN ENGINEERING ANNOUNCES A BREAKTHROUGH IN MEMORY

The unprecedented 120 factory pre-programmed frequencies for worldwide reception makes tuning into the world's shortwave radio broadcast almost as simple as touching a button. You also have 512 alpha numeric user-programmable memory positions which can be expanded to 2048 memory positions so you can build your own favorite-station radio archive!

DESIGN & ENGINEERING HONORS
INNOVATIONS 93
CONSUMER ELECTRONICS SHOW

WORLD CLASS RECEPTION

With PLL Tuning, selectable wide/narrow band width filter, and a redesigned and vastly improved synchronous detector, the Satellit 700 offers unparalleled reception, sensitivity and selectivity. The 700 comes equipped with a built-in NiCad battery charger, the Grundig shortwave frequency guide, and a one-year warranty covering parts and labor. If you have any questions regarding the Satellit 700, please call our shortwave Hotline and talk to the experts, U.S. (800) 872-2228, and Canada (800) 637-1648 (9AM to 4PM PST).

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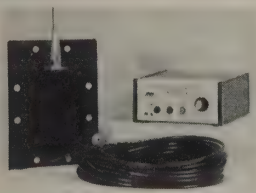
Shortwave Accessories...

▶MFJ-784B Super DSP Filter Digital Signal Processing automatically eliminates hetrodynes, reduces noise and interference on SSB/CW/AM, all digital modes, VHF, EME & satellite. Tunable FIR linear phase filters minimize ringing, prevent data errors, and have up to 60dB attenuation, just 75Hz away. Tunable Spotting Tone™ automatically tunes the CW filter even in the narrowest bandwidth. MFJ's exclusive Adaptive Tuning™ center frequency tuning automatically becomes finer as you narrow the bandwidth making extremely narrow filters easy-to-use. Improved automatic notch with variable aggressiveness. Speaker On/Off button, Filter Talk™ and more! 2W audio amplifier/AGC. 12V DC or 110VAC with MFJ-1315. 2½"h x 9"w x 6"d **$229.95**

▶MFJ-752C SSB/CW Audio Filter (left) Pull out stations from noise and interference. Peak, notch, low or high pass signals to eliminate hetrodynes and interference. Filters tune 300–3000Hz, bandwidth varies from 40 Hz to almost flat, notches to 70dB. Noise limiter. Switchable inputs for 2 radios. 9-18VDC or 110VAC with MFJ-1312. 10"w x 2"h x 6"d **$94.95**

▶MFJ-956 LW/MW/SW Preselector/Tuner (right) Improves the reception of signals from 150kHz–30MHz. Tuning boosts signals while rejecting images, intermodulation, and other phantom signals. SO-239 connectors. 2"h x 3"w x 4"d **$39.95**

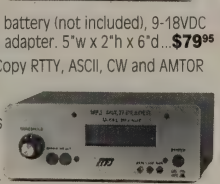
▶MFJ-959B Antenna Tuner & Preamplifier Covers 1.6 to 30MHz providing the proper impedance match between antenna and receiver for maximum signal and best reception. Built-in 20dB preamplifier with gain control and 20dB Attenuator. Front panel switches select from two antenna inputs and outputs for two receivers. 9-18VDC or 110VAC with MFJ-1312. 5"w x 2"h x 6"d **$99.95**



▶MFJ-1024 Outdoor Active Antenna Covers 50kHz–30MHz. Amplifier module with 54 inch whip mounts outside. Connection is made by 50 ft. of RG-58/U coax (supplied) to an control unit inside which contains a gain control and 20dB attenuator to prevent receiver overload from the amplified signals. Switches select between two receivers, and auxiliary antenna. LED "on" indicator. RCA phono auxiliary input and output jacks. 12VDC or 110VAC with MFJ-1312B adapter. Control: 6"w x 2"h x 5"d, Module: 3"h x 4"w x 4"d **$119.95**

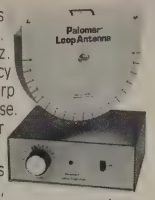
▶MFJ-1020B Indoor Active Antenna Covers 300kHz to 30MHz in five bands. Built-in 21 inch telescoping antenna provides maximum signal strength. Also functions as a preselector when using an external antenna. Minimizes intermodulation, improves selectivity and reduces noise. Tune, Band, Gain, On-Off/Bypass controls. Uses 9V battery (not included), 9-18VDC or 110VAC with MFJ-1312 AC adapter. 5"w x 2"h x 6"d ... **$79.95**

▶MFJ-462B Multi-Reader Copy RTTY, ASCII, CW and AMTOR signals from Amateur, Commercial, Military, Weather, Aero, Marine, Plugs into SW receiver phone jack, decodes and displays messages on a two-line, 16 character LCD display. 12VDC. 5½"w x 2½"h x 5½"d **$159.95**



Connect the MFJ-462B into an EPSON compatible computer and print CW, RTTY, AMTOR and ASCII messages Use the **▶MFJ-5413** standard RS-232 cable **$9.95**

▶PALOMAR LA-1 Loop Antenna Picks up less noise than other antennas. Frequency Range: VLF to 15MHz. Six plug-in loops for various frequency ranges rotate and tilt to produce sharp nulls that cancel interference and noise. Built-in 20dB preamp compensates for small size. 2¼"h x 7¼"w h x 6"d. **$99.95**



▶Plug-in Loops for LA-1 Ranges include 40–150kHz, 150–550KHz, 550–1600kHz, 1.6–5MHz or 5–15MHz ..... each **$89.95**

PALOMAR VLF Converters Receives and converts the 10 to 500kHz Very Low Frequency) band to 80 meters. Two models tune this low range on a general coverage receiver or ham band transceiver. Requires 9V battery. 2"h x 4¾"w" x 5"d.

▶VLF-A for use with a Ham Band transceiver **$79.95**
▶VLF-S for use with a General Coverage receiver **$79.95**

▶AMECO TPA Tunable Preamplifier/Active Antenna Covers 2–30 MHz in 5 bands. Use with an outside antenna as a tunable preamplifier with >20dB gain and low noise figure, or as an effective indoor active antenna using the built-in 30" collapsible whip. Requires 9 VDC or 110VAC with opt. PT-9T AC adapter. 2½ "h x 8"w x 6½"d **$69.95**

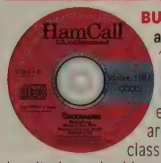
ANTENNA SUPERMARKET

▶EAVESDROPPER™ Shortwave Antenna An 8-trap configuration provides reception of all shortwave bands, 11 to 90M. Includes Zap-Trapper® gas-tube lightning arrestor and 50 ft. of support rope. Overall length is 42 ft. and comes fully assembled. When ordering, specify with **100 ft. of 72Ω twin lead**, or weather-proofed **coaxial center connector** (coax not included). **$79.95**

▶EAVESDROPPER™ SWL SLOPER Shortwave Antenna End-fed, coil loaded, with underslung parallel element. Mounts in a sloping configuration. Covers AM broadcast, 120 and 90M, and all shortwave bands 7 to 13M. Overall 67 ft., comes fully assembled. Includes Zap-Trapper® lightning arrestor, coaxial connector, and 50 ft. of nylon rope **$79.95**

ALPHA DELTA

▶SWL Sloper Antenna Covers 13, 16, 18, 19, 21, 25, 31, 41, 49, 60, 90, and 120 meter shortwave bands, plus the AM broadcast band. Sloper design provides outstanding reception of low-angle DX signals. Multi-band transmit capability with an appropriate antenna tuner, handles up to 2000 watts. Overall length is 60 ft, requires 50Ω coaxial cable ..... **DX-SWL $79.95**



BUCKMASTER HamCall CD-ROM for MAC and IBM PC Compatibles Look up over 1,250,000 listings by call, name, address, city, zip, call sign suffix and country. Plus, license issue date, expiration, birth date, previous call, area code, hours past GMT, previous class, and new high-precision latitude, longitude, and grid square. Great for APRS! Retrieve by call, name and zip on MAC ..... **BUC HAMCALL $50.00**

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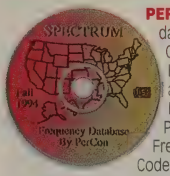
▶AOR SDU5000 Spectrum Display Unit See stations above and below your receiving frequency. Usually the transmissions are short, but you can watch for stations to pop-up over a 10MHz window, then zero in. It's a menu-driven system for simple opertion, the display is a 3.1" HQM simple matrix color LCD and the resolution is 5 or 30KHz. Designed as a companion to the AOR AR-3000A but works with other receivers with a 10.7MHz output **$899.95**

▶BMI Nitelogger II Automatic Tape Recorder Activator Takes audio from any 8Ω source and provides 600Ω match and voice activated relay operation for a recorder. Three connections: the radio's external speaker jack, the recorder's remote and mic input jacks. Manual/auto switch for operating the recorder without disconnecting cables. This device can make a simple crossband repeater by connecting up two HT's. Built-in monitor speaker with volume, drop-out sensitivity & delay controls, record light. AC adapter supplied **$69.95**

▶BMI RC-1A Impedance Matching Patch Cord Provides a proper impedance match between an 8Ω source and a 600Ω tape recorder input. Uses capacitive isolation of the audio signal. Provides proper loading for the source device, an attenuator prevents recorder input overload. 3.5mm plugs ... **$19.95**



PERCON SPECTRUM CD A frequency database with over 3 million records. Contains data for Police, Fire, Hospitals, Taxis, Businesses, State and Local Governments, Airlines, Hotels, Utilities, Theme Parks, Phone Companies, and more. Shows Frequency, Callsign, Radio Service Code, Class of Station, DBA Name, Transmitter Latitude and Longitude, City/County/State, and number of mobiles for Vehicle, Marine, Air, Portable and Pagers. Extract data by various sorts. Requires: 386 processor or above, CGA, EGA, or VGA Video Display, minimum of 2 Meg Hard Disk, CDROM Drive, and a printer for reports **$29.95**

WALNUT CREEK

▶QRZ! Ham Radio CDROM Volume 4 Winter 1995 edition

Contains the most up-to-date US FCC amateur radio license data with 700,000 names, addresses and callsigns. Contains an all-new shareware collection with 7031 data files covering all facets of amateur radio – over 600 Megabytes of information. New QRZ-II Windows search and retrieval software locates any callsign in less than 2 seconds. Search/display by callsign, name, city, street address, or zip code. Runs under Windows, NT, DOS, OS/2, Warp, UNIX, and Wabi All databases are in documented, open, and non-encrypted ASCII format. **WAL HAMQRZ $29.95**

QRZ! Ham Radio CD ROM also includes:

- 1000's of PC compatible Amateur Radio Programs
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- 100's of Radio and Scanner MODS
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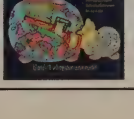
- Morse Code Training Software, Radio Control Programs, Contest Logging Software
- RTTY, WEFAX, Baycom, Rose, TheNet, TAPR and DSP files
- USENET Ham Radio News Archives, ARRL Bulletins
- Sound Blaster Compatible .WAV files for TNC Testing
- Windows Visual Basic and C++ Compatible .DLL Library
- Source code and executables for SunOS and AIX UNIX



1996 Passport to World Band Radio
Shortwave listening guide containing data on every international broadcast station; names, locations, frequencies, operating times, coverage, target area, transmit power, and more. Hourly guide for English language programs, worldwide. Test reports, buyer's guide . **ARR 251 $19.95**

uniden®

Scan the Action!
- Ham Radio
- Police, Fire
- Emergency
- Weather
- More ...

BC-147XLT-1
BC-148XLT-1

▶UNIDEN BC-147XLT-1 16 channel Base unit with 10 bands, including weather. Covers 29-29.7, 29.7-50, 50-54, 136-144, 144-148, 148-174, 406-420, 420-450, 450-470 & 470-512MHz. Two-digit LED display shows the current channel selection and scanning. Keyboard Entry; Direct Channel Access; Manual Step Tuning; Scan; Lockout; Priority; Review; Weather Search; Automatic Squelch; Track-Tuning; Memory Back-up, 3 Scan Speeds. 9"w x 2¾"h x 6½"d, 1.2 lbs..... **$89.95**

▶UNIDEN BC-148XLT-1 16 channels, 10 bands with weather alert. Programmable; Digital; AC/DC operation. Frequency coverage: 29-54, 136-174 and 406-512MHz. Weather button; Priority; Lockout button; Squelch. AC adapter and telescoping antenna included. 9"w x 2¾"h x 6½"d, 1.2 lbs..... **$99.95**

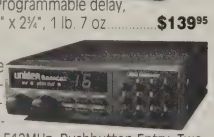
▶UNIDEN BC-350A 50 channel Mobile/Base unit with aircraft; 11 bands, LCD display; Super Turbo scan™, 100 channels/second. 20 programmable private channels; 20 programmable police channels; 10 programmable fire and emergency channels; Band scan for aircraft; Marine & weather; Band search. Mounting bracket; AC adapter, DC & cigarette power cords included. 5¼" x 6 15/16" x 1⅝", 1 lb. 11 oz.. **$109.95**

BC-350A/BC-700A

▶UNIDEN BC-700A 50 channel programmable Mobile or Base unit scanner with aircraft 12 bands, LCD display, Turbo Scan™.Same as BC-350A with 800MHz (no cellular) **$169.95**

▶UNIDEN BC-178XLT 100 channel programmable Base unit with aircraft. 11 bands. and 5 scanning banks, LCD display; TurboScan™ & search; Weather scan & search; 5 priority channels; Data skip; Service search; Automatic squelch; Programmable delay, AC adapter included. 9" x 6½" x 2¼", 1 lb. 7 oz..... **$139.95**

▶UNIDEN BC-560XLA 16 channel, programmable mobile unit. 10 bands: 29.0-29.7, 29.7-50, 50-54, 136-144, 144-148, 148-174, 406-420, 420-450, 450-470 & 470-512MHz. Pushbutton Entry; Two-Digit LED Display; Review Key; Priority; Memory Back-up; Channel Lockout; Direct Channel Access; Weather Search; Built-in Delay; Track Tuning. 13.8V DC. Mobile mounting bracket and AC adapter. 6⅞"w x 1⅝"h x 5½"d, 1¼ lbs..... **$89.95**



▶UNIDEN BC-760XLT 100 programmable channels, 5 scanning banks. 12 bands cover 29-54, 118-136, 144-174, 406-510, 470-512 & 806-956 MHz (no cellular). Auto search; Priority. 13.8V DC or 117V with adapter. 6⅞"w x 1⅝"h x 7¾"d, 1 lb, 3 oz... **$209.95**

▶UNIDEN BCT-7 Bear Tracker 800 Pre-programmed with all frequencies for Highway Patrol, D.O.T, Local/County Police, News, Fire, Aircraft, CB. Selectable by state (except Hawaii). 12 bands, 100 user programmable channels: Highway Patrol Priority Alert; Data Skip, Weather Scan. AC adapter and mobile mount. 13.8V DC, 5"w x 7"d x 1⅞"h, 1 lb, 11 oz **$179.95**

▶UNIDEN BearTracker BCT-10

Highway Information System A sophisticated highway alarm system with 886 pre-programmed frequencies that responds to radio signals emitted from special secondary transmitters installed on most highway patrol vehicles. Audible and visual alarms, plus signal strength LEDs indicate the presence and distance of patrol vehicles **$169.95**

▶UNIDEN BC-860XLT

Programmable scanner with Aircraft. 100 channels, 12 bands, 10 banks. Covers 29 to 956 MHz (no cellular). Full frequency LCD display; TwinTurbo™ scan/search; One-touch weather scan; Manual channel access; Automatic squelch; 9"w x 2¼"h x 6½"d, 1.2 lbs..**$179.95**

▶UNIDEN BC-890XLT

BC-890XLT • BC-9000XLT

200 channel programmable Mobile/Base w/Aircraft, Military Air and 1¾ meter Ham Band. 14 bands, 10 scanning banks. LCD display, TurboScan™; 10 priority channels; VFO control; Frequency transfer; Autostore/sorting; Count key; Weather alert; Optional CTCSS; AC adapter. 10½" x 7½" x 3½", 3¾ lb **$249.95**

▶UNIDEN BC-9000XLT 500 channel continuous band scanner, covers 25-1300 MHz (no cellular). 20 banks. VFO control; 10 priority channels; AM, FM/wide FM modes; TurboScan™ and Search; LCD dot matrix alpha display; Data skip; Frequency transfer; Automatic store; Aux. line output for recording; AC adapter, optional CTCSS. 10½"w x 7½"d x 3½"h, 4 lbs ...**$399.95**

▶UNIDEN BC-60XLT-1 30 channel, programmable handheld scanner, 10 bands. Two-digit LCD display; review; One touch weather battery-low indicator, built-in scan delay, keypad lockout, AC/DC operation with AC adapter included; 4AA batteries required for DC operation. 2⅝"w x 6¾"h x 1½"d, 10½ oz..... **$99.95**

BC-60XLT-1
BC-80XLT

▶UNIDEN BC-80XLT 50 channel, programmable handheld scanner. Covers 29-956MHz (no cellular). 11 bands, 5 banks, 5 priority channels, one touch weather. Manual channel access; Bands search; Full frequency LCD display; Battery-low indicator. AC /DC operation-AC adapter included, 4-AA Nicad or alkaline batteries (not included) required for DC operation. 2⅝"w x 6¾"h x 1½"d, 10½ oz..... **$169.95**

BC-120XLT
BC-230XLT

▶UNIDEN BC-120XLT 100 channel programmable handheld scanner with Aircraft coverage. 11 bands, 10 scanning banks, LCD display, Turbo Scan™ and search. One touch weather, 10 priority channels, data skip, memory backup. Belt clip, battery and wall charger included. 2½"w x 1¾"d x 6"h, 12½ oz... **$139.95**

▶UNIDEN BC-230XLT 200 channel programmable handheld scanner with Aircraft & 800 MHz (no cellular). 12 bands, 10 scanning banks. Programmable search. LCD frequency display, Turbo Scan™ and search. One touch weather access, 10 priority channels, data skip, memory backup. Belt clip, extra battery, wall charger. 2½"w x 1¾"d x 6"h, 12½ oz..... **$239.95**

BC-3000XLT

▶UNIDEN BC-3000XLT 400 channel continuous band scanner. Covers 25 to 1300MHz (no cellular) in 12 bands. 20 scanning banks, 10 priority channels. VFO control; TurboScan™ and search, auto-weather, auto-store; channel lockout. Rechargeable nicad battery and charger. 2½"w x 1¾"d x 6"h, 12½ oz **$379.95**

▶UNIDEN SC-150B "SPORTCAT" 100 channel programmable handheld scanner with aircraft and 800 MHz (no cellular). Designed for the racing fan with 10 one-touch, direct access keys for instant selection of active sports channels. Listen in on the action at motor racing, air shows and special events.12 bands, 10 scanning banks. LCD display, programmed band search. TurboScan™ scans at 100 channels/second, allowing instant access to up to 100 memorized frequencies in the 29-54, 108-174, 406-512 & 806-956MHz band. Ten preprogrammed TurboSearch™ keys allow band-edge to band-edge frequency locating at 300 channels per second. One-touch weather, data skip. Rechargeable battery pack, wall charger, flexible antenna, belt clip, earphone included. 2½" w x 1¾"d x 6"h, 12 oz **$189.95**

SC-150B

AR-2700 AR-8000 AR-3000A

▶AOR AR-2700 Wide-band receiver – covers 100kHz to 1300MHz (cellular blocked) with AM, FM and wide FM modes. Selectable tuning steps, 500 memory channels: (10 banks x 50 Search banks), 10 VFO, 1 priority. 30 channels per second search and scan rate, delay, pause and priority. Auto-Mode tuning with pre-programmed band plan to simplify operation. Optional 20 sec. voice recording, computer control, and second radio cloning. BNC antenna input. Operates from internal nicad batteries, 4-AA alkalines or an 9 to 16V external DC source. 6"h x 2.9"w 1.4"d, 11.2 oz **$389.95**

▶AOR AR-3000A Scanner/Receiver for serious wide-spectrum monitoring. Continuous tuning via keypad or dial 100kHz to 2036 MHz (cellular blocked). All-mode reception, 400 memory channels, 50 channels/second scan and search rate. 15 band-pass filters and low noise, wide dynamic range GaAs FET RF amplifiers. Backlit LCD display, programmable tuning steps, priority, delay, recorder activator. Operates from 9 to 16V DC. Includes 120V AC adapter, BNC telescopic whip and DC lead. 5½"w x 3"h x 7⅞"d, 2.5 lbs **$1049.95**

▶AOR AR-8000 All-mode, wide-band receiver for general purpose monitoring. Covers 500kHz to 1900 MHz (cellular blocked), 1000 memory channels. Top-panel rotary knob tunes frequencies and channels, dual VFOs toggle between two-frequency simplex. Selectable tuning steps, 30 channels/second scan/search speed. Large, edge-lit, multi-line, 44 character alphanumeric display. Enter 7 characters of information and store along with frequency and other settings in the 1000 memories. Second-radio cloning capability, power saver. New user mode for initial ease of operation, and expert mode. Uses nicad or alkaline batteries; nicads and charger included. 2¾"w x 6"h x 1½"d,13 oz..... **$599.95**

ICOM Wideband Scanning Receivers

R-100-11 R-7100-12 CLOSEOUT

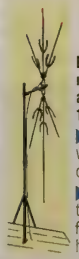
R-1-15

▶ICOM R-100-11 For Base or Mobile – covers 100kHz to 1856 MHz (800 to 900MHz blocked) with FM, wide FM and AM modes. Keyboard or Manual tuning. Scan functions, 121 multi-function memories, 24-hour clock, 3 antenna inputs, telescoping antenna, mobile mount. 13.8V, opt. AC adapter. 5¾"w x 2"h x 7½"d, 3 lbs..... **$669.95**

▶ICOM R-7100-12 For base – covers 25 to 800 and 900 to 2000MHz ranges. Dial and keyboard entry, 900 numbered memory channels. Multiple scanning capabilities with new window scan, all-mode squelch. Clock with timer, optional TV receive capability **$1299.95**

▶ICOM R-1-15 Handheld Receiver – covers 100kHz to 1300 MHz (800-900 MHz blocked), FM, wide FM & AM modes. Rotary tune or direct keyboard entry. 100 memories, scanning, LCD display, 24-hr clock/timer, signal indicator, power-saver. Built-in nicad battery; charger, or 6-16VDC. 1⅞"w x 4"h x 1½"d...**$429.95**

Channel Master Scanner Antenna

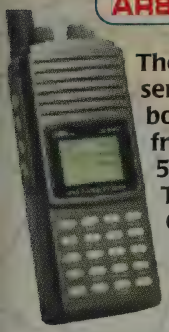


E-X-T-E-N-D your scanner range many times with an externally mounted Channel Master Monitenna. This wide-band antenna provides best scanner reception for the 30-50, 148-174, 450-470, 470-512 and 800-912 MHz bands.

▶Model 5094A High-strength aluminum, and weather protected. Comes with 50 ft. length of coaxial cable and Motorola-type plug **$39.95**

▶Model 5095A Everything for a roof-top installation: Monitenna, 50 ft. of coaxial cable with plug, 5 ft. tri-mast mount, 2 ft. extension standout, double headed nails and sealing washers .... CLOSEOUT **$49.95**

AR8000 RECEIVER



The AR8000 is a highly sensitive receiver boasting a very wide freq. coverage of 500kHz to 1900MHz. This is the, "New Concept" in hand held receivers.

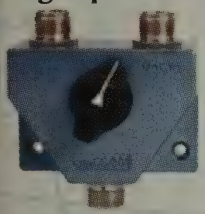
** Cell-Blocked, Except for Approved Agencies*

SDU5000 SPECTRAL ANALYZER

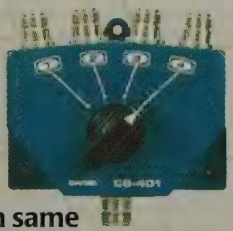
Now the serious listener can afford the luxury of an SDU! The SDU5000 is compatible with the AR3000A (with mod), the ICOM R9000, R7100 & R7000 with ICOM CT17-plus other receivers. "SEE" what you've been missing.

CS201 COAXIAL SWITCH

Two position cavity construction coaxial switch. Usable frequency range up to 600MHz with less than 0.2dB insertion loss.



CS401 COAXIAL SWITCH



Four position coaxial switch with same quality construction as CS201. Usable to 800MHz with same low loss and UHF connectors. Perfect for use with multiple antenna systems.

AOR®

AR5000 BASE RECEIVER

Leading Edge Technology has now become affordable. Covers 10kHz to 2,600MHz, 650 memory channels, 10 banks x 65 channels, scan 50 steps/sec.

FCC Approval Pending

** Cell-Blocked, Except for Approved Agencies*

AES...Bringing you the BEST from around the world!

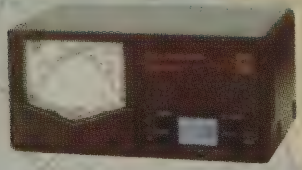
AR3000A RECEIVER

Compact, wide range receiver provides continuous coverage, & professional quality scanning from 100kHz to 2036MHz. Receives all modes - FM, FMW, AM, LSB, USB and CW...so you won't miss a thing. Truly the professional's choice.

** Cell-Blocked, Except for Approved Agencies*

DAIWA

CN101 SWR METER



Daiwa's best selling cross needle meter. Coverage from 1.8-150MHz, perfect for your amateur base station use all the way thru the 2M band.

CN400 SERIES

Compact, cross needle SWR/PWR meter for mobile use.

- CN410M covers 3.5 - 150MHz up to 150W fwd. power
- CN460M 140 -450MHz to 150W fwd. power
- CN465M 140 - 450MHz to 75W fwd power.

All units supplied w/ mobile mounting bracket.

AR2700 SCANNER

AOR's, "New Star" is the Full featured, wide-band, AR2700, covering 500kHz to 1300MHz. This new generation receiver combines all the specifications you need...at an affordable price.

** Cell-Blocked, Except for Approved Agencies*

Sold by:
AES
Distributed by:
Electronic Distributors

maxon SYSTEMS Personal Communicators

Low Power • 1/4 mile average range • No license

Dual conversion superheterodyne receivers provide crisp, clear voice transmission. Compatible use for group communications. Push-to-talk (PTT) or convenient Voice activated (VOX) lets you talk-to-transmit.

CHANNELS: **(A)** 49.830 MHz **(B)** 49.845 MHz **(C)** 49.860 MHz **(D)** 49.875 MHz **(E)** 49.890 MHz

▶**MX-49SX** Single-channel unit featuring a lightweight adjustable headset with retractable whip antenna, LED indicator, boom microphone with windscreen and battery charger jack. Range up to 1/4-mile. Requires two "AA" regular or rechargeable batteries. 5"w x 2½" x 1", 9 oz. **Specify channel A, B, or E** ..**$29.95**

▶**MX-49FX** 5 channels and a combination earphone-microphone that that picks up voice vibrations from the ear canal for transmit, and also provides receive audio. Built-in antenna gives up to 1/8-mile range, and will not interfere with helmets. Remote PTT button and channel selector. Requires 3 "AA" batteries. 5½"w x 3" x 1", 6 oz. **Channels A, B, C, D & E** **$49.95**

▶**MX-49HX** 5 channels, great for motorcycling, snow mobiling, etc. The helmet-adaptable headset has a whip antenna and boom microphone with windscreen. VOX or PTT with on-unit or remote switch. Front mounted off/on and volume, VOX sensitivity and channel selector. Jacks for optional passenger intercom headset. Requires 3 "AA" batteries. 5½"w x 3" x 1", 6½ oz. **Channels A, B, C, D & E**.....**$49.95**

▶**PC-10** Single channel, compatible with all Maxon 49MHz units. PTT or VOX operation. Detachable headset with boom microphone included. Approximately 1/4-mile range. VOX or PTT operation, call tone. Requires 3 "AA" alkaline batteries. **Specify channel A, B, or E** **$34.95**

▶**PC-50** Similar operation as the PC-10, but **5 channels – A, B, C, D & E**.....**$49.95**

Low Power VHF & UHF Handhelds

Ideal for short range communications...

Recreation, construction sites, in factories, security work, etc.

▶**COURIER M-510** 10 synthesized VHF channels programmable 144 to 174MHz. 5W output. Rechargeable nicad battery, AC charger, flexible antenna, F.C.C. license application included. 4¼"h x 2⅛"w x 1⅜"d, 15 oz.....**$269.95**

▶ **COURIER MU-510** 10 synthesized UHF channels programmable from 450MHz–470MHz. 5W output. Rechargeable nicad battery, AC charger, flexible antenna, F.C.C. license application included. 4¼"h x 2⅛"w x 1⅜"d, 15 oz.....**$299.95**

▶**COURIER M-54** VHF, 4 channels, 5W, comes with 151.625 MHz installed.5¼"h x 2⅜"w x 1½"d 15 oz.....**$199.95**

▶**RANGER RCI-1000** Two VHF channels, 1W output. Includes two sets of crystals installed for 151.625 and 154.57MHz or 154.60 and 154.57MHz. Rechargeable nicad battery and AC charger, flexible antenna. 4¼"h x 2½"w x ⅞"d, 12 oz **$139.95**

▶**MAXON GMRS-10** (not pictured) UHF, single channel with 462.625MHz. 100mW output – up to one mile range. Requires 3 "AA" alkaline batteries. 6"h x 2⅛"w x 1½"d, 8.2 oz **$79.95**

Order Toll Free & use your Credit Card!

VHF Marine Equipment

RANGER Communications, Inc.

▶**RCI-6060 Marine VHF Radio** • All U.S. and International Channels • 4 Weather Channels • Keypad entry • All channel scanning • Direct Access to Channel 16 • Dual-Watch Mode • Selectable 5W or 1W Output • Power Up/Down Microphone Switch • Backlit LCD Display • External Speaker and PA Jacks • Weather Resistant Housing • 3"h x 7½"w x 8¼"d, 2 lbs.....**$169.95**

▶**RCI-8000 Handheld Marine VHF Radio** All USA & International Marine Channels • 10 weather Channels • All Channel Scan • Dual Watch • Direct Channel 16 Access • 5W/1W Output • Back-lit LCD Display • Weather Resistant Housing • Rechargeable Battery Pack with Wall Charger • External Power Jack • Time-out Timer • 2⅜"w x 1½"d x 7⅜"h, 1.2 lbs **$169.95**

SGC Comercial Grade HF Transceiver

▶**SG-2000** Rugged commercial grade 150W HF transceiver. Operates A3A, A3H, A3J and CW in LSB and USB, true AM in receive mode, and Data. Programmed with 644 ITU channels and 100 user defined channels that can be set to frequencies within the 1.8–30 MHz range; receives 500kHz-30MHz. Keypad control with 21 illuminated keys. Scans ITU channels and 100 memories. Adjustable scan speeds/rates. Large, wide-angle LCD with adjustable backlighting for easy night viewing. Operates as a single unit, or the front panel can be removed to function as a remote head. Computer control via RS-232. 12VDC @ 16A. 4¾"h x 10"w x 15"d, 12 lbs **SGC 04-01 $1479.00**

▶**SG-230 The Smartuner®** Automatic HF antenna tuner capable of tuning any length antenna from 8 to 80 ft. long within 1.8–30MHz. Rated up to 150W, requires very low RF input for automatic tuning, works on a SSB signal! Microprocessor controls switching of 64 input and 32 output capacitor combinations, plus 256 inductance combinations in a pi-network to tune an unknown antenna in just two seconds. 500 memories store previous tuning combinations to tune in milliseconds. Waterproof for mobile-marine applications. 10–15VDC @ 0.9A.12"w x 16"d x 3"h, 8 lbs..**SGC 54-12 $489.95**

Low Inductance Copper Strap for Marine Applications

Copper strap is an advantage over wire when used for a ground path because of its lower inductance. For example: 1.5" strap has a lower inductance than #2.0 stranded wire. Easy to cut, solder, etc .Available in 1½, 3 and 6 inch widths and 25, 50, 75 or 100 foot rolls

See POLYPHASER in the Price List

ICOM Aircraft & GPS

▶**ICOM A-22 VHF Air Band Transceiver** Covers (COM) 118.-136.975, (NAV) 108-117.95MHz & 10 WX Channels. 50 memory channels. Programmed scan, memory scan and lock output. 5W output. Instant 121.5MHz NAV features: 200 ch., VOR nav with CDI, radial heading TO/FROM VOR, Auto Bearing Set. Semi-duplex–combines VOR/COM operation. Nicad battery & wall Charger. 2½"w x 7¼"h x 1½"d, 1.4 lbs **$549.95**

▶**ICOM GP-22 GPS Receiver (right)** Fast and accurate positioning worldwide! Instant navigation, course and speed over ground. Cross track error, ETA, bearing and range to a waypoint and more! 2⅜"w x 1⅛"d x 5⅛"h, 3½ oz. with OPK-4 external antenna kit.

$299.95

uniden

▶**MC-535 80 channel Marine VHF Radio** • All USA & International Channels • Instant CH 16 • 10 Weather Channels • Memory Scan • Dual Watch • LED Channel Display • 25 Watt/1 Watt Output • Weather Resistant Housing • Front Speaker • 13.8V DC @ 5A • 6⅛"w x 7⅜"d x 2⅜"h, 2.4 lbs.....**$139.95**

▶**MC-635** • Features similar to MC-535 but 90 Channels • LCD Channel Display • 6⅛ "w x 8"d x 2⅛"h **$149.95**

▶**MÇ-795 90 channel Marine VHF Radio**. Same as MC-635 but additional features: Weather Alert • Group Scan Feature • All Channel Scan • Weather Resistant Microphone **$169.95**

▶**HH-979 90 channel Handheld Marine VHF Radio** • All USA & International Channels • Instant Channel 16 • 5 watt and 1 watt output • Rotary Switch Channel Display • Weather Resistant Housing and Microphone • 13.8V DC or supplied Nicad battery pack • 2¼"w x 1½"d x 7"h **$159.95**

▶**HH-980 90 channel Handheld Marine VHF Radio** Same features as HH-979 but cast aluminum case • watertight, • weather alert • 3 year warranty • **$249.95**

ICOM VHF Marine Radio

▶**IC-M10A Miniature Handheld Marine VHF Radio** Programmable for all USA & International Channels & Weather • Independent Channel 16 • 24 Memories • Full Function/Priority Scanner • Dual/Tri-watch • 3W output • Power-Saver • Large back-it LCD display • CALL key for hailing channels • "AA" Alkaline battery pack provides 2-14 hours for each set (Batteries not included). 2⅜"w x 1⅜"d x 4⅞"h, 12 oz **$219.95**

SHAKESPEARE Marine Antennas

▶**5202 (A)** Collinear-phased 5/8-wave elements. 6dB gain. 8 ft. long, handles 50W. DC grounded. Chrome-plated brass ferrule. Includes 20 ft. of coaxial cable with connector.....**$69.95**

▶**497 (B)** Collinear phase 5/8-wave elements. 6 db gain. 8 ft. long, handles 50W - **not** DC grounded. Smaller diameter absorbs flex. Includes 20 ft. coaxial cable/connector **$49.95**

▶**5206-C (C)** Economy model, end fed, 8' long with 6dB gain. Handles 50W, DC grounded. 15 ft. coax/connector.....**$39.95**

▶**420 (D)** Center-fed 1/2-wave coaxial sleeve model. 3dB gain, 5 ft. long. Polycarbonate lift-and-lay deck mount with leveling plate, hardware and 20 ft coax cable/connector **$59.95**

▶**495 (E)** Lift-and-lay polycarbonate deck mount **$14.95**

▶**366H (F)** Ratchet mount with handle for deck or bulkhead mounting. Has 9/32" hole for Loran cable. Standard 1"x14 male threads. Chrome plated zamac **$29.95**

maxon SYSTEMS Weather Monitor

▶**WX-70 Weather Monitor** Receives weather service broadcasts on seven N.O.A.A. stations: 162.550, 162.400, 162.425, 162.475, 162.450, 162.500, and 162.525MHz. Three different severe weather "Alert" warning modes. 110V with supplied AC adapter, uses a 9V battery for back-up **$39.95**

CLOCKS

BMI

▶**972A (left)** Battery operated 12-hour time quartz controlled clock with 12" dial and sweep second hand. Black textured case and clear glass crystal. Uses 1 (size AA) battery. 14" dia. x 1¾" d. Looks good in shack!..... **$28.00**

▶**973A (right)** 24-hour version..... **$49.95**

▶**972AD**
14" diameter
12/24 hour format
wall clock **$32.00**

MFJ

▶**105B 24 Hour Quartz Wall Clock** Handsome black, 10" diameter face, sweep second hand. Uses single "A" battery, not included..... **$19.95**

▶**112 Dx'ers World Map Clock and Calendar** Latest electronic and display technology shows a World Map with 25 major world cities selectable by pushbutton. 12-hour time format with alarm feature. Large 1/2" LCD readout shows: Time, Month and Day in 24 different world time zones. Includes handy tilt bracket and long life lithium battery. 5¼"w x 3¼"h x ⅝"d **$24.95**

BIG! 6½" x 13"

▶**114 Giant LED 24/12-hour clock**. Four gigantic 2.3" digits. User selectable 12 or 24-hour display format. 110VAC with battery back-up. 6½"h x 13"w x 1"d **$39.95**

▶**116 24/12 Hour LED Clock** 24/12 hour switchable. Huge Red 5/8" LED digits. ID timer keeps you legal by alerting you to state your call every ten minutes. 110VAC with battery back-up. Compact 4½" w x 2"h x 4"d **$14.95**

▶**Small 24-hour Clocks** A Dual Clock with separate UTC and local time displays, and a Single Clock with 24 hour time only. Heavy brushed aluminum frame, 5/8" high LCD numerals, sloped face. Flashing seconds colon, battery included.

▶**107B Single Clock**, 2¼"w x 1"h x 2"d ..... **$ 9.95**

▶**108B Dual Clock**, 4¾"w x 1"h x 2"d..... **19.95**

NAVAL

▶**HTS-3 Audio Booster Speaker** Improves audio output from HT's, Walkman, etc. Has a 10dB audio amplifier and a quality 3-1/2" speaker. Requires (4) AA batteries; alkaline or nicads, or 5-15VDC; has built-in charger. Comes with 5 ft. audio cord with plug and stereo-monaural converter. 2¼"w x 4½"h x 2½"d, 1 lb... **$29.95**

ASTRON Power Supplies

The alternative to more costly "matching" power supplies

105–125V AC input, 13.8V DC output; internally adjustable from 11–15V • Electronic regulation with fold-back current limiting and crowbar overvoltage protection • Heavy-duty heat sink • 3-wire cord • One year Warranty • Made in U.S.A.

Separate voltage and ampere meters on RS-20M, 35M, 50M and 70M. Separate voltage and ampere meters, plus voltage adjustment (2–15V DC) on VS-20M, VS-35M and VS-50M. RM-35M, RM-50M and RM-60M are rack mount models.

Astron Model	Cont. Amps	ICS Amps	Size (in.) H W D	Shipping weight	
RS-7A	5	7	3¾ x 6½ x 9	9	**$59.95**
RS-10A	7½	10	4 x 7½ x 10¾	11	**69.95**
RS-12A	9	12	4½ x 8 x 10¾	13	**79.95**
RS-20A	16	20	5 x 9 x 10½	18	**99.95**
RS-35A	25	35	5 x 11 x 11	27	**149.95**
RS-35A/220V	Same as RS-35A but 220V input				**169.95**
RS-50A	37	50	6 x 13 ¾ x 12	46	**219.95**
RS-70A	57	70	6 x 13¾ x 12	48	**259.95**
with separate volt/amp meters					
RS-20M	16	20	5 x 9 x 10½	18	**119.95**
RS-35M	25	35	5 x 11 x 11	27	**169.95**
RS-50M	37	50	6 x 13¾ x 11	46	**239.95**
RS-70M	57	70	6 x 13¾x 12	48	**289.95**
with variable output & separate volt/amp meters					
VS-20ML	16	20	5 x 9 x 10½	20	**139.95**
VS-35M	25	35	5 x 11 x 11	29	**189.95**
VS-50M	37	50	6 x 13¾ x 11	46	**259.95**
Rack mount models – separate volt/amp meters					
RM-35M	25	35	5¼ x 19 x 12	38	**249.95**
RM-50M	37	50	5¼ x 19 x 12	50	**279.95**
RM-60M	50	55	7 x 19 x 12	60	**359.95**

▶**RS-4L** Power supply with built-in cigarette lighter receptacle on the front panel. 13V DC @ 4 Amps peak, 3 Amps continuous. 3½ "h x 6 ⅛"w x 4¼ "d, 6 lbs..... **$49.95**

▶**RS-12S** Power supply with built-in speaker. Rated 13VDC @ 12A pk., 9A cont. 4½ "h x 8"w x 9"d, 13 lbs **$89.95**

ASTRON Solid-state Power Inverters

General Purpose

▶**12/115** Converts 12V DC to 115VAC @ 60 Hz. Provides convenient AC house current in your Boat, Car, Truck, Camper, etc. Powers your ham rig, small household appliances, TV, tools, radios and lights up to 200W continuous, with peaks up to 240W, overload protected. Produces a square wave output which is not recommended for devices where high transients are not tolerable. 4½"h x 8"w x 9"d, 9 lbs. **$59.95**

Aircraft

▶**2412** Converts 22 to 32V DC input to 13.8V DC output @ 9 amps. Eliminates tapping into 28V battery for 12V **$59.95**

▶**2412-20** Same as above, but rated 16 amps output.. **$79.95**

TUNE BELT

Handheld Radio Belt

With this unique belt you get an integrated pouch and belt for less than the cost of most carrying cases. Strap it on – it's comfortable, convenient and protective. It's available in sizes to fit virtually any handheld from 5 to 7 inches long.

HH-1PS for up to 5" HT .. **$19.95**
HH-1PM for up to 6" HT. **$19.95**
HH-1PL for up to 7"HT..... **$19.95**
HH-2PM for up to 6" HT, with battery pocket **$21.95**
HH-2PL for up to 8" HT, with battery pocket **$21.95**

NEW WAVE Antenna

PORTAPLE Collapsible Masts

For portable or temporary antenna installations!

These telescoping 7-section, 6063-T832 polished aircraft aluminum masts taper from 2" to 1¼" and are easily raised by one person at ground level in seconds. Each section joint has a 4" overlap and snaps into place. Rotates at any section along its length, or locks.

▶**Adventurer** 47" to 12 feet..... **$109.95**

▶**Traveler** 59" to 19 feet.... **$124.95**

▶**Rover** 71" to 26 feet.... **$149.95**

▶**Expeditioner** 83" to 33 feet.... **$174.95**

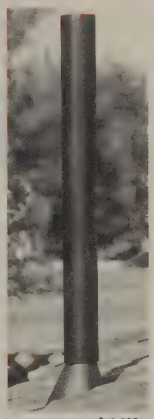
▶**Explorer** 95" to 40 feet.... **$199.95**

▶**Big Foot** Park-on steel mount for supporting portable masts. Primed, ready to paint. 8¾ lbs **$119.95**

Order from Milwaukee only

Forbes Group

Ventenna™



Stealth! Get around those antenna restrictions and finicky neighbors. The **Ventenna** is virtually unnoticeable because it looks like part of the normal structure. To install, just slip it over an existing 1" to 2½" plumbing vent pipe, connect up your coax and you're on the air.

Ready to go! – No Tuning or Measuring is required.

Choose from single band models for 2M, 220MHz or 440MHz and a 2M/440MHz Dual Bander.

▶**VT-14** 2 meters, 3 ft. tall, 2.6dB gain **$44.95**

▶**VT-22** 220MHz, 25" tall, 2.6dB gain **$44.95**

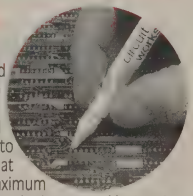
▶**VT-27** 2m/440MHz Dual bander **$66.95**

▶**VT-44** 440MHz, 14" tall, 2.6dB gain **$44.95**

▶**VT-15S** Scanner Model 3 ft. tall, 2.6dB gain..... **$44.95**

Circuit Works

Conductive Pen



Features a specially a formulated silver thermoplastic designed to link circuit board components, repair traces, make jumpers and shield delicate electronics. Easy to apply, air drys in 3 to 5 minutes at room temperature, achieves maximum conductivity after 20 minutes. Can be heat cured in 1 to 2 minutes at 250 to 300°F. May be soldered at 350°F for <5 seconds after heat cure by using a low temperature tin, lead or silver solder with flux for best results. For traces 1/32" and wider – contains enough material for 100 ft..... **$11.95**

1996-97 ARRL Repeater Directory

Includes more than 20,000 listings for voice and digital repeaters and propagation beacons located in North, Central and South America. Lists more than 500 beacons from 14 to 24 GHz, band plans, tone chart, committees, clubs and more! Pocket sized .. **ARR271 $8.00**

TIMEWAVE TECHNOLOGY INC.

Noise Killer Filters

Advanced DSP Filters...

Improve reception by simultaneously reducing random noise, heterodynes, QRM and providing razor sharp audio for SSB/CW modes. The DSP filter features 3rd generation 16-bit processing and 16-bit DSP A/D and D/A chip. Processor runs at 13 million instructions per second allowing multiple functions at the same time. A must for the weak signals and noisy bands. Simple installation at receiver audio output, drives speakers or headphones directly.

▶**DSP-9 Version 3.0 CW/SSB Filter** Push button selectable bandpass, automatic notch and random noise filters for SSB/CW and Data. SSB filter bandwidths: 1.6, 2.0, 2.4kHz. or 1.8, 2.4, 3.1 kHz, field programmable. CW filter bandwidths: 100, 200 and 500Hz with center frequencies of 600/750Hz or 400/500, field programmable. AGC on SSB with the hetrodyne button pushed in. Reduces white noise, static, QRM, etc–dramatically! Excellent for HF and weak signal Satellite work. Self-test mode can be initiated by user. FCC type A & B accepted. 12VDC @ 1A. 6"w x 6"d x 1¾"h, 2 lbs..... **$169.00**

▶**DSP-9 Plus Version 3.0 SSB/CW/Data Filters** Push button selectable bandpass, automatic notch and random noise filter for SSB/CW and Data. SSB filter bandwidths 1.6, 2.0, 2.4,kHz or 1.8, 2A, 3.1 kHz, field programmable. CW filter bandwidths 100, 200, and 500 Hz with center frequencies of 400, 500, 600, 800 Hz; any two field programmable. Optimum data filter for HF Packet, GTOR®, AMTOR, and RTTY. RTTY remodulator for perfect copy of signals below the noise level. ALL data modes have selectable center frequencies user programmable, default is USA std. 2210 Hz. AGC button for wider dynamic range, plus acts as an automatic CW boost and peaking enhancer. Auxiliary audio output jack for data, PTT input for break-in. CW sidetone, bypass and muting. Relay passes audio directly to speaker with pushbutton bypass or power off, self-test. FCC type A & B accepted. 12VDC- 1A. 6"w x 6"d x 1¾"h, 2 2 lbs..... **$199.95**

▶**DSP-59 Plus Version 3.0** Perfect for the Ham and SWL hobbyist. Features 225 combinations of high and low pass filters for voice and special modes. Over 300 CW and data filters (25 to 600Hz) allow the user to select almost any filter needed for a specific application, including RTTY, SSTV, AMTOR, G-TOR®, PACTOR, Packet, Satellite, EME, SSB, CW, Weather Fax and AM. Remodulator for RTTY for perfect copy of signals below the noise level. Voice filters from 200 Hz (highpass). 13 CW center frequencies from 400 Hz. to 1.0 kHz on front panel. Push button selection of relay, bypass, AGC, HP/LP/BP, hetrodyne elimination and random noise reduction. Kills hetrodynes with notch up to 50dB. Dramatic random noise reduction from static, lightning crashes, white noise, line noise, etc. Marker for spotting the narrow CW filter, audio generator and self-test mode. FCC type A & B accepted. 12VDC @ 1A. 7½"w x 8"d x 1¾"h, 2.2 lbs..... **$259.95**

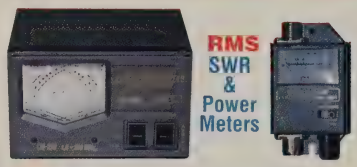
DSP-599ZX
All-Mode DSP Noise Filter

"The most powerful noise and QRM filter in amateur radio"

Proven Timewave Quality anchors the richest feature set of all DSP Noise Filters. The DSP-599ZX combines a hyperspeed DSP processor with and alphanumeric display, quick-select push-buttons and optical encoders to wipe out noise and QRM like never before! Heterodynes disappear like magic, weak signals pop up from the noise, and the razor-sharp filters slice away QRM. The DSP RTTY demodulator pulls out solid copy when you can barely hear a signal. Continuous filter tuning to 5.4 KHz opens up the wider bandwidth modes like shortwave AM broadcast and VHF/UHF FM. It's easy-read, set and recall all of the settings with the backlit alphanumeric LCD display - no guessing with Timewave Calibrated Filters™ and Visible Memory™. 12 VDC @ 1A. 7½ "w x 8"d x 1¾"h, 2.2 lbs..... **$339.95**

- **Hyperspeed DSP - 27ns fast**
- **Enhances voice, data and CW**
- **Demodulates RTTY**
- **Wideband for AM and FM**
- **Two selectable inputs**
- **Programmable input sensitivity**
- **Audio Voltmeter and Generator**
- **Complete self-test**
- **Visible Memories™ - Instant recall**
- **Programmable line output level**
- **Shortwave to narrow SSB listening**
- **LCD Alphanumeric Display**
- **Front panel programming**
- **80 KB RAM on the DSP chip**

TIMEWAVE
General information, inquiries and customer service
Internet E-Mail: dsp@timewave.com
www: http://www.timewave.com



RMS SWR & Power Meters

▶**CN-220 Power/SWR Meter (left)** Covers 1.8–225MHz, rated at 1.5kW with 15, 150 and 1.5KW ranges. PEP or average power. Cross-needle. One scale indicates forward power, the other, reflected power. SWR is indicated where the two needles cross. This unique feature makes it possible to easily read forward power, reflected Power & SWR simultaneously. SO-239 connectors. 5½ w" x 3⅜"h x 4⅜"d, 1.8 lbs **$144.99**

▶**W-450 Power/SWR Meter (right)** Covers 144 to 170 and 400 to 470 MHz ranges. Indicates average power up to 150W and VSWR. SO-239 connectors, 4⅜"h x 2½"w x 1¼"d, 7 oz..... **$69.99**

RMS VHF AMPLIFIER

▶ **PA-546** for the 140 to 155MHz range. Increases 1 to 3 watt FM/AM portables to 20 to 40 watts output. Input power is 0.35 to 5W, output is 45W maximum. Requires 12 to 15VDC @ 8A. 1⅜"h x 4¼"w x 4½"d, 14.5 oz. lbs..... **$129.99**

VISA DISCOVER Cards

TRIPP LITE THE POWER PEOPLE

POWER SUPPLIES
Powerful Values For Ham Operators

▶105-125V AC INPUT, 13.8 V DC output; Tripp Lite's line of reliable, DC power supplies are perfect for all you Ham radio equipment. With a wide selection, including most popular sizes, rugged construction and the best prices in the industry. Trip Lite, in business since 1922, provides a high-quality DC power alternative. 1 year warranty.

▶ .Features include:
- Current-limiting foldback for complete over current protection
- Crowbar Overvoltage protection on 15 amp and larger models
- Solid state, integrated circuitry.
- Metal cases on all models
- High quality filtering for very low ripple/low noise
- Fully regulated output maintains 95% of no-load value
- Unbeatable product support, service and reliability
- Rack mount models available

TRIP MODEL#	CONT. AMPS	ICS AMPS	SIZE (HxWxD)	SHIP WT.	AES PRICE
PR-7	5	7	3¾x 6½x 7½	7	**$47.95**
PR-10	7.5	10	4½x 6¾x 7¾	10	**63.95**
PR-12	9	12	4½x 6¾x 7¾	11	**68.95**
PR-20	16	20	4½x 6¾x 7¾	15	**94.95**
PR-30	24	30	6¾x 6¼x 10¼	23	**129.95**
PR-40	32	40	6¾x 10½x 11½	27	**166.95**
PR-50	37	50	6¾x 10½x 11½	30	**199.95**
PR-60	48	60	6¾x 10½x 11½	33	**237.95**

RF Limited POWER PLUS
AMPLIFIERS

All Power Plus amplifiers feature low noise, GaAS FET preamps (except HL-35NP) • all-mode operation (FM & SSB) • 1 year warranties • 13.8V DC

HL-35V 2M Linear Amplifier
144–148MHz • 8.5dB gain • 13dB gain receive preamplifier • 0.5 to 5W IN/20 to 35W OUT • 4.5 amps • 1⅜"h x 4"w x 6 ¾"d..... **$99.95**

HL-35NP 2M Linear Amplifier
144–148MHz • 8.5dB gain • 0.5-5W in • 20-35W OUT • 4.5 amps • 1⅜ "h x 4"w x 6¾"d • No preamp..... **$79.95**

HL-62V 2M Amplifier
144–148MHz • 10dB gain • 16dB gain preamp • 0.5-10W in • 6-60W OUT • 9 amps • 1⅜ "h x 6"w x 5"d..... **$179.95**

HL-36U 70cm Amplifier
420–450MHz • 7dB gain • 0.5-12W IN • 30W OUT max • Automatic attenuator for inputs over 7W • 5.5 amps • 1⅜"h x 6"w x 5"d..... **$229.95**

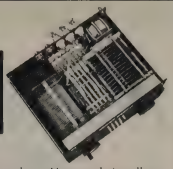
AIM ELECTRONICS

▶**38-384 Light Duty DC Power Supply** Input: 115V AC. Output: 13.8V DC regulated @ 4 amps. Front panel binding posts, LED "on" indicator, fuse protection. 7¾" x 4¾" x 3", 5½ lbs..... **$39.95**

▶**38-305 AC Adapter** Multi-voltage, 500ma, low voltage DC to operate battery powered equipment requiring 3, 4.5, 6, 7.5, 9 or 12 volts DC. Multiple application plugs and 9V snaps..... **$12.95**

▶**38-312 Regulated AC Adapter** Multi-voltage, 1200ma. Multiple plugs and 9V snaps for 1.5, 3, 4.5, 6, 7.5, 9 or 12VDC **$24.95**

NYE VIKING



▶**MB-V-A** 1.8–30MHz continuous tuning. Heavy duty silver plated variable inductor with 25:1 vernier dial. 7kV variable capacitor and 15kV switch selected fixed output capacitors. Tunes most antennas 1/4-wave length or longer from 40–2000Ω but some antennas may not tune at 1.8 MHz. Automatic SWR metering without reset or calibration. Separate automatically switched 300W/3KW RMS wattmeter. Precision 2½" backlit meters display SWR and Power, continuously. Rugged, silver plated 5-position pushbutton antenna switch selects 4 antennas: 2 coaxial, single wire and balanced line, and bypass. Trifilar-wound 3KW toroid balun provides balanced output from 200 to 1000Ω, and unbalanced output down to 20Ω. Requires 9V battery for meter and external 12VDC for meter lights. 14¾"w x 6¾"h x 12¼"d, 18 lbs **$729.95**

▶**MB-V-B** same specifications as MB-V-A above, except no Power or SWR metering capability **$599.95**

NYE Low Pass Filter Installs between transmitter output and antenna. Eliminates Television Interference caused by harmonics from 1.8–30MHz transmitters. Rated at 2KW, handles 5KW SSB peaks. Flat, low loss passband and stopband for over 65dB attenuation above 57MHz. SO-239 connectors, both ends ..... ▶**020-001** **$49.00**

ASTATIC Microphones

▶ **D-104L (left)** The original "super talk power" microphone, a favorite of hams for decades! High output and 300-7500Hz response with rising characteristics between 500 and 4000 Hz, provides maximum intelligibility. Shock proof cartridge with high impedance crystal element, metal sealed for protection. Solid machined brass parts, heavy mesh grille, all heavy chrome plated. 3" dia. x 1⅛"d, 14 oz. Requires T-UG9 stand **$39.95**

▶ **10DA-L (center)** High impedance dynamic SSB microphone. Controlled 300–3000 Hz response provides high attenuation of the unwanted sideband and better copy through interference. 2⅞"w x 2⅛"h x 3⅛"d, 17 oz. Requires T-UG9 stand **$49.95**

▶ **T-UG9 (right)** Accepts the D-104-L or 10DA-L microphone heads. Built-in adjustable preamplifier with an output impedance that matches most transmitters. Side switch bar for PTT with slide-up clamp for locking down. Height is 8½" without head, base is 5½"diameter. Chrome neck, grey base, 6-wire coiled cable. Requires 9V battery for the preamplifier..... **$49.95**

SHURE® Microphone

▶ **526T Series II SUPER PUNCH®** A dynamic microphone with a solid-state preamplifier and adjustable volume control. Works into 500 to 5000Ω input impedances allowing it to replace most ceramic or dynamic original equipment microphones. Tailored 200 to 6000Hz frequency response provides very effective audio. Convenient momentary or locking push-to-talk bar operation. Comes with a coiled 5-conductor cord and wiring guide. Requires connector and 9V battery. 2 lbs, 11 oz **$112.95**

Order Toll Free & use your Credit Card

Solve your noise problems with Digital Signal Processing! ...

JPS Communications, Inc

Noise & Interference Reduction Unit

▶**NIR-10** Simply installs between the audio output and speaker of your communications receiver and provides real-time 40MHz Digital Signal Processing to enhance the quality of received voice and CW signals. NIR Mode: reduces or eliminates heterodynes, ignition, power line and white noise, and RTTY interference. Peak function: reduces white noise interference. Notch Filter mode: easily removes multiple heterodynes. Band Pass mode: features an adjustable center frequency, selectable bandwidths, extremely steep skirts and greater than 60 dB ultimate rejection. Requires 12VDC @ 1A .2"h x 7"w x 6"d, 2 lbs **$279.95**

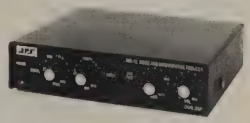
DSP Spectral Notch Filter

▶ **NF-60** Digital Signal Processing automatically removes MULTIPLE interfering heterodynes (tones and whistles), tune-ups and CW/RTTY tones. Simple connection between you receiver audio output and speaker. Built-in audio power amplifier. 12VDC @ 1A. 1¾"h x 6"w x 4⅜"d, 2 lbs..... **$149.95**

Noise Reducer and Filter Unit

▶ **NRF-7** Provides several functions that improve reception for Amateurs and SWLs. Reduces or eliminates atmospheric (white/pink) noise and multiple heterodynes. No-delay filters for AMTOR, PACTOR and break-in CW. Sharp, non-ringing CW and voice filters, plus auto NOTCH filter and white noise reduction., Installs between receiver output and speaker, built-in audio amplifier. 12VDC. 1¾"h x 6½"w x 5"d, 2 lbs..... **$199.95**

Noise/ Interference Reducer & Filter Unit

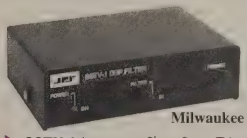


▶**NIR-12** Features TWO 40 MHz DSPs to provide the most powerful and advanced DSP Noise Reduction Unit available. Unparallel performance, super-selective FIR filters, fully adjustable filter center frequency and bandwidth (3400 Hz to 50 Hz); both Dynamic Peaking AND Spectral Subtraction Noise Reduction; spectral multi-tone NOTCH filter. All NIR-12 modes and functions may be used simultaneously. Use on all operating modes, including AMTOR and PACTOR. Easily installed between the receiver audio output and the external speaker. Europe CE Certified. Requires external 12V DC @ 1A. 1⅞"h x 6½"w x 7¾"d, 4 lbs **$329.95**

▶**SDK-12 Software Development Kit** The interface module and software disk to allow progrtamming of the NIR-12 DSP chips via the serial data bus on your personal computer..... **$35.00**

Wide Band Noise and Tone Remover

▶ **NTR-1** A general purpose audio processing unit for noise reduction and multiple tone removal for AM/FM, or other wideband 160– 6600Hz signals. Provides narrow band100 to 3400Hz operation for SSB, CW or Data. Reduces atmospheric noise with dynamic peaking and removes multiple tones from voice signals. Installs at receiver audio output, built-in audio power amplifier. 12VDC. 1¾"h x 6½ "w x 5"d, 2 lbs. **$159.95**



DSP Filter for Slow Scan TV

Milwaukee only

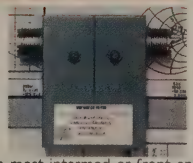
▶ **SSTV-1** Improves Slow Scan TV reception. Two DSP filters reduce or eliminate adjacent channel and in-band interference which can cause "tears" and color shifts..Sharp cutoff passband is centered at the1200Hz sync pulse frequency, yet wide enough to pass VIS and other information. Linear phase, steep skirted 1500Hz–2300Hz passband for picture data. Removes any offending tones, interference, etc. below 1050Hz and above 2300Hz. 12VDC, 1¾"h x 6"w x 4¼"d, 2 lbs **$149.95**

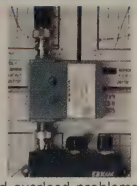
Antenna Noise Canceller

▶**ANC-4** Eliminates local POWER LINE noise before it enters the receiver to let you hear signals you didn't know were there. Two front panel adjustments, PHASE and GAIN, reduces 0locally-generated noise typically by 50 dB. Usable between 100 kHz and 80 MHz. Short whip and wire noise pick-up antennas supplied with each unit. Rear panel connector for external noise probe. Auto transmit switchover up to 250 watts.Delay time internally selectable. Installed between the antenna and receiver. Europe CE Certified. 12V DC @ 300 mA. 1¾"h x 6"w x 4⅜"d, 2 lbs **$169.95**

▶**Power Pack** 115V AC adapter for above JPS units..... **$16.00**

PAR ELECTRONICS





Solve most intermod or front end overload problems with these small, asymmetrical, 45 to 54dB notch filters centered on the offending pager spectrum of 152 to 153 MHz. Insertion loss is typically 0.5 dB or less with a V.S.W.R of 1.25:1. Designed for use on dual-band (2m/70cm) transceivers with low-loss pass-thru of 70 cm signals.

▶**VHFDN152 2-meter Intermod filter for Base/Mobiles** SO-239 connectors, rated at 50 watts, 2" x 1" x 2½..... **$62.00**

▶**VHFDN152HT 2-meter Intermod filter for Handhelds** BNC connectors, rated at 20 watts, 1½" x ¾" x 2" **$68.00**

DCI Bandpass Filters

Installs between your 2m rig and antenna to reduce the strength of out-of-band interfering signals while allowing the signals you want to hear pass through at full strength.

- Eliminate the random squeals, squawks, beeps and strange voices from your VHF radio (Intermod).
- Hear the signals you want to hear even in crowded urban centers with strong police and paging systems.
- Design: Four helical resonators with aperture coupling
- Passband: 144-148 MHz • Passband loss <1 dB
- Selectivity: –62dB at 136MHz
  –50dB at 156 MHz
- Accepts 200 watts of power • Reduces spurious transmitter emissions. • VSWR 1.5:1
- Made of extruded aluminum, copper and brass, PL-259 connectors. 12w" x 3"h 5"d, 2 lb, 11oz • Totally passive, does not need DC power. ▶**DCI 146-4H**.... **$89.00**
  ▶**DCI 223.5 3H** 220MHz version..... **$89.00**
  ▶**DCI 445-10C** 440MHz version **$109.00**

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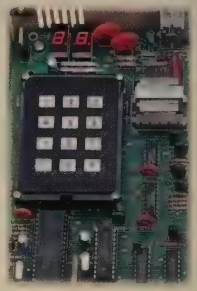
TURN YOUR RADIO INTO A PHONE!

Beat the high cost of cellular by using a **CSI** interconnect to initiate and receive telephone calls using your home telephone line extended to your mobile or handheld via your base radio. We have various models for simplex and duplex transceivers. Some models even have a built-in repeater controller suitable for inexpensive club or private repeaters with autopatch.



Only CSI Interconnects come with a built in programming keypad and display

COMPARE THESE FEATURES

• 90 memory speed dialer • Last Number Redial • Built-in Programming Keyboard and Digital Readout • Single or multi digit access codes • Secret toll override access codes • Toll Restrict numbers and sequences • Telephone to mobile DTMF selective calling† • Remote Base Mode makes the base station available from any touchphone† • Regenerated tone or pulse dialout • Ringout on 1-9 ring • Line in use detect • Call waiting • CW ID • Hookflash • Activity & Timeout timers... And much More! † Not available in CS-700

PRIVATE PATCH V

Our top of the line interconnect! Private Patch V is a user programmable multi-mode interconnect that offers four user selectable operating modes: 1. Enhanced Sampling 2. VOX Simplex 3. Semi-Duplex 4. Repeater Controller. FCC and DOC approved. No other patch offers as many modes and features!
12-15 VDC 11.5" W x 7.5" D x 2.25" H 3.8 lbs.

9801 Electronic Voice Delay Option for Private Patch V

A plug in board that provides a full 1/2 second delayed telephone audio to eliminate word clipping when using Private Patch V with very slow switching transceivers in VOX simplex.

CS-900 CONTROL STATION INTERCONNECT

The CS-900 is a VOX simplex interconnect for use with any simplex transceiver. Can also be used through remotely located repeaters (from your base) for additional range. The standard 1/2 second Electronic Voice Delay totally eliminates syllable or word clipping and results in unsurpassed simplex performance. Connects to the Mic and Speaker jacks of your simplex transceiver. FCC and DOC approved. (Transceiver switching speed does not affect performance).
12-15 VDC 7.9" W x 7.5" D x 2" H 2.5 lbs.

CS-800 FULL OR HALF DUPLEX INTERCONNECT

The CS-800 operates Full Or Half duplex and also has a built-in Repeater Controller. Simply connects to the Mic and Speaker jacks of your dual band transceiver. FCC and DOC approved. Best deal going in a full duplex interconnect!
12-15 VDC 7.9" W x 7.5" D x 2" H 2.5 lbs.

CS-700 INTELLIGENT INTERCONNECT

The CS-700 is for simplex operation and offers selectable VOX Enhanced or VOX Controlled Sampling which allows the mobile to maintain positive control at all times. Complete with 9 memory speed dialer. Requires an internal connection to the transceiver detector. Best results occur with fast switching transceivers.
12-15 VDC 7.9" W x 7.5" D x 2" H 2.5 lbs.

COMMUNICATIONS DECODERS

CD-1 COMMUNICATIONS DECODER UNIT

Decodes and displays all 50 CTCSS tones, 104 DCS codes and all 16 DTMF digits when connected to any scanner receiver or service monitor. Useful for service work or determining the correct codes to operate open repeaters and autopatches. DTMF sequences are slowly displayed a second time just in case the real time digits were too fast to comprehend.
12-15 VDC 4.9" W x 4.5" D x 1.9" H 1 lb.

CD-2 COMMUNICATIONS DECODER UNIT

Looks and operates similar to CD-1 but also includes an RS-232 serial port to export decoded CTCSS, DCS or DTMF data to your PC.
12-15 VDC 4.9" W x 4.5" D x 1.9" H 1 lb.

LT-2 TRUNKING DECODER UNIT

Decodes and displays user number and home repeater for all subscribers on E.F. Johnson LTR® Trunking repeaters. All decoded data is exported on the RS-232 Serial Port.
12-15 VDC 4.9" W x 4.5" D x 1.9" H 1 lb.

CD-2P APPLICATION PROGRAM

Maintains a history of CTCSS/DCS/DTMF data from your CD-2 occurring on the channel being monitored, creates useage graphs etc.
PC/DOS based.

LT-2P APPLICATION PROGRAM

Maintains a history of all decoded subcarrier data from your LT-2 occuring on LTR® Trunking systems you are monitoring. Creates usage graphs etc.
PC/DOS based.

Check Out Connect Systems in the Price List

CONNECT SYSTEMS INC.
2259 Portola Rd. Ventura, CA. 93003
Phone (805) 642-7184 FAX (805) 642-7271

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LTR is a registered trademark of E.F. Johnson Co.

PACKET

AEA Advanced Electronic Applications, Inc

Exceptional Data Controllers

PK-232MBX • PK-12 • PK-96 • DSP-2232 • DSP-1232

See separate AEA Digital pages for complete Product Descriptions Photos and Prices.

HAL COMMUNICATIONS CORP.

▶P38 MULTIMODE HF MODEM

A full-size 13½" DSP card for all AT compatible PC's. Provides the best all-around performance on CLOVER, PACTOR, AMTOR and RTTY. Does not require the use of Comm ports or IRQ's. Operating software for your PC is included. Latest updates are available through the HAL Techline and the Internet. Third party software, such as EXPRESS, RAGCHEW, WF1B is available. One-year HAL warranty..... **$349.95**

HAL TECHLINE: 217-367-5547

Data Radio

▶MFJ-8621 5W, 2M packet-only Data Radio with high-performance through 9600 baud. Plug in the TNC cable*, your antenna and power – you're ready for packet on 145.01 MHz. 12 VDC @ 1 amp. 5"w x 5½"d x 1½"h..... **$109.95**

▶MFJ-8621X1 VHF Data Radio for APRS **$129.95**

***See Price list for pre-wired 8621-to-TNC cables. Crystals for other packet channels are available thru MFJ at 1-800-647-1800.**

Popular PACKET Books

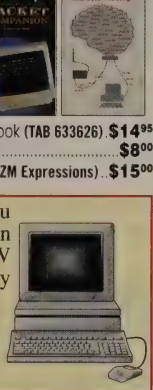
▶The Digital Communications Handbook **(TAB 633626)**..**$14.95**

▶Your PACKET Companion **(ARR 358)**.....**$8.00**

▶What is your TNC doing ? by KA5ZTX **(ZM Expressions)**..**$15.00**

If your computer that you use on your packet station old, out of date, S-L-O-W or Cranky.... it's probably time for you to upgrade!

Check out the two AES® Computer configurations on p. 71



Kantronics www.kantronics.com

▶KPC-3 Packet Communicator This small, 1200 baud TNC is ideal for both new and experienced users. Now, the KPC-3 supports GPS operations and is APRS compatible. Requires so little power, it can run on a 9-volt battery, so it is perfectly suited for GPS and other portable applications. Available with either 32K or 128K RAM and can be controlled remotely. Includes two easy-to-use terminal programs for the PC. Supports terminal, Host, BBS, KISS (TCP/IP) & GPS modes. 6–25 VDC @ <45 mA. ¾"h x 5¼"w x 5¼"d, 11 oz..(32K RAM) **$119.95**

▶KPC-3 with 128K RAM..... **$139.95**

▶KPC-9612 Packet Communicator As a dual-speed, dual-port TNC, the KPC-9612 can operate at both 9600 and 1200 baud at the same time (the 9600 baud port can be configured for 19,200 baud). With Kantronics' optional K-Net networking EPROM, it can operated as both a node an a TNC at the same time. Available with either 32K or 128K RAM and can be controlled remotely. Includes two easy terminal programs for the PC. Supports terminal, Host, BBS. KISS & Multi-drop KISS. 6–25 VDC @ <45 mA. ¾"h x 6¼"w x 6¼"d, 13 oz... (32K RAM) **$209.95**

▶KPC-9612 with 128K RAM..... **$239.95**

KPC-9612 Monitors POCSAG Paging!

Firmware update! Now V7.0 – to monitor 512 & 1200bps numeric and alphanumeric RPC1 (POCSAG) paging messages. V7.0 also supports page transmissions and a packet paging server. Ten new paging commands! Users may connect to MYPAGE @ 1200 or 9600 to initial a page. A Paperlog and Pagebook may be established in RAM, assisting the sysop in maintaining and the remote operator in using the paging server. The Paperlog logs all pages sent and the Pagebook stores call signs an pager capcode pairs. Paging operations require a 9600-like "data-ready" transceiver which attaches to the 9600 port of the KPC-9612.

▶KAM Plus All Mode Communicator G-TOR™, Pactor, RTTY, CW, ASCII & NAVTEX/AMTEX. Two radio ports, operates any HF mode and VHF Packet at the same time. Has 128K battery-backed RAM (expandable to 512K) and a real-time clock. Also features "TOR Standby" for automatic link recognition in all TOR modes, dual level command set for beginners or veterans, and on-line helps. Uses standard shifts and programmable for any shift. Operates RS-232 or TTL. Includes two easy-to-use terminal programs for PC. Supports terminal, Host, BBS & KISS (TCP/IP). 12 VDC @ <260mA. 1¾"h x 6"w x 9"d, 2½ lbs... **$299.95**

▶Data Engine Dual port High-Speed TNC Configure with one or two modems and data rates up to 19,200 baud. With two modes installed, the Data Engine is capable of simultaneous operation on both ports. Standard firmware includes KA-Node for networking; G8BPQ and JNOS firmware are available via the factory BBS. Comes with 64K of battery backed RAM and 10MHz V40 processor. Open architecture, developers manuals are available. 1¾"h x 6"w x 9"d, 2½ lbs... (No modems) **$299.95**

▶Data Engine with DE-1200, 1200 baud modem..... **$359.95**

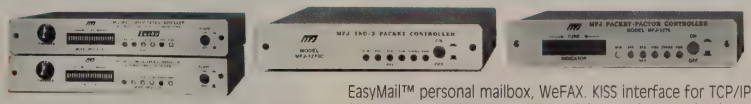
▶DE19K2/9K6 19,200/9600 baud modem..... **$109.95**

▶HOSTMASTER II+™ Multi-mode Terminal Software. Easy-to use menu-driven programs designed to complement Kantronics TNCs. Use **Hostmaster II+** for IBM-PC and compatibles or **HOSTMASTER Mac** for the Macintosh..... **$79.95**

▶SuperFax II Multi-mode Terminal Software. For Kantronics KAM or KPC series, ideal for WEFAX reception..... **$49.95**

▶G-TOR™ BOOK – The New Mode A valuable collection of previously-published articles, a detailed description of the G-TOR protocol and informational numerous charts. Written primary by Kantronics staff Phil Anderson, WØXI, Karl Medcalf, WK5M and others. 90 pages, soft cover **$19.95**

MFJ Packet



▶MFJ-1278B Multi-mode Data Controller 10 modes: PACTOR, 16-level FAX, Color, SSTV, PACKET, AMTOR, RTTY, ASCII, CW Navtex & Memory Keyer. Enhanced Mailbox, 32K RAM, 16-gray level modem, 20 LED tune indicator, Auto Signal Analysis, MARS mode, sidetone amplifier, internal modem header, 10 user programmable message buffers, packet connect bell, dual radio ports, "Has Mail" LED , KISS interface, Host mode, Threshold control, RS-232 and TTL ports. 12 VDC, AC adapter 9½" x 9½" x 1½"... **$269.95** • **MFJ-780** DSP Board... **$94.95**

▶MFJ-1278BT Turbo Same as MFJ-1278B above except Turbo version, includes a 2400 baud modem..... **$339.95**

▶MFJ-1278B/DSP Same as MFJ-1278B w/DSP filter ..**$349.95**

▶MFJ-1270C TAPR TNC-2 Clone Interfaces computer with RS-232 serial port and terminal program for VHF/UHF, OSCAR and other non-FM packet. Switchable HF/VHF modems. EasyMail™ personal mailbox, WeFAX. KISS interface for TCP/IP, 256K EPROM & 32K RAM. TTL serial port, battery back-up. AX.25/Level 2-V2 software, hdwe HDLC–full duplex, true data carrier detect for HF, multiple connects. interface cable, serial port connector & AC adapter.12 VDC. 9½" x 7½" x 1½" **$109.95**

▶MFJ-1270CT TAPR TNC-2 Clone 9600 baud TNC..... **$179.95**

▶MFJ-1276 TAPR TNC-2 Clone Same as 1270C but with PACTOR and 20 LED tuning indicator ..... CLOSEOUT **$149.95**

▶MFJ-781 DSP for all TNCs! Separate unit gives your TNC (Kantronics, AEA, etc) Digital Signal Processing power....**$119.95**

▶MFJ-2400 2400 bps packet modem for MFJ TNCs..... **$89.95**

▶MFJ-9600B 9600 bps packet modem for MFJ TNCs. **$104.95**

▶MFJ-1272B/M TNC/MIC Switches. Just push a button for voice or digital. Specify radio and TNC connection..... **$39.95**

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Top of the Line Controllers

This is the Cadillac and the Corvette of data controllers rolled into one. Work satellites, HF, VHF, even Gateway between HF and VHF. The DSP-1232 with two switchable ports, and the DSP-2232 with two simultaneous ports, provide a new level of performance and versatility in data controllers. The capabilities of both are endless.

Features

- ***Dual Simultaneous Ports (2232)***
- ***True Gateway between modes & radio ports***
- ***9600 & 1200bps packet***
- ***Signal Identification (SIAM™)***
- ***Auto satellite correction***
- ***Great modes, plus the satellites***
- ***Hardware HDLC***
- ***Digital Signal Processor***
- ***All standard modes***
- ***PSK modems***
- ***Hardware Memory ARQ***
- ***Full MailDrop facilities***

Specifications

Demodulator	Motorola 56001 Digital Signal Processor running at 24 MHz
Modulator	Phase continuous sinewave, AFSK generator
Modulator output level	5-100 mV RMS, adjustable with side-panel controls
Processor system	Hitachi 64180
RAM	64K Lithium battery-backed
ROM	Up to 384K (DSP uses 128K)
Hardware HDLC	Zilog 8530 SCC
Power requirements	+13 VDC (+12 to +16 VDC) @ 1.1A
Input/Output Connections	
Radio interface	Two 5-pin DIN connectors. Simultaneous operation on the DSP-2232, software selectable on the DSP-1232
Direct FSK outputs	Normal/Reverse
CW keying output	+100 VDC @ 100 mA max or -30 VDC @ 20 mA max
Terminal interface	RS-232-C DB-9P connector with hardware/software handshake
Terminal data rates	Autobaud settings at 300, 600, 1200, 2400, 4800, 9600, and 19,200 bps
Printer interface	IBM compatible 25-pin bi-directional parallel port (DB-25 connector)
Physical	
Dimensions	12" (305mm)W x 9.8" (249mm)D x 2.9" (73.7mm)H
Weight	3 lbs; 12 oz (1.7 kg)

Built for the Future

The great advantage of having Digital Signal Processors in your data controller is that new modems or modes only require new software. Unlike an analog modem which usually requires that new hardware be installed. In addition, DSPs provide filtering that analog machines just can't match. Plus, if you decide to buy the single port DSP-1232, you can fully upgrade to a dual port 2232 at a later time.

All Proven Modes

PACTOR, VHF/HF Packet, AMTOR/SITOR, Baudot, ASCII, Morse, TDM, and NAVTEX. As new modes become available, all you need are replacement EPROMs. Satellite and all the modems that made the PK-232MBX a legend are included, plus the K9NG and G3RUH compatible 9600 bps modems. For specific modems included, see the opposite page.

Full MailDrop

You get the latest version of MailDrop with selective control of third party traffic and bulletin board system (BBS) compatibility so messages can be automatically forwarded.

True Gateway & Dual Ports

The DSP-2232 has the ability to create a gateway from packet-to-AMTOR, packet to PACTOR, and of course, packet-to-packet. Since you have dual simultaneous radio ports, the DSP-2232 allows cross-mode gateway operation. Packet users connecting to Port 2 have the ability to monitor and link to other AMTOR, PACTOR, or even packet stations using your HF radio on Port 1. The dual ports also offer simultaneous HF and VHF monitoring, or running two VHF packet radios at the same time. You can also listen to your local DX node while working AMTOR on an HF frequency.

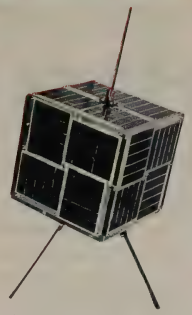
LCD Readout

The unique LCD read-out on the DSP-2232 displays the mode and diagnostics for both radio ports, giving you information on connect and system status. On packet, the LCD displays the call sign of stations heard. On RTTY, AMTOR, and PACTOR, text received on the air is displayed. This is true for both radio ports of the DSP-2232

TDM Capability

As with all AEA multi-mode data controllers, these DSPs will decode Time Division Multiplex (TDM) signals. TDM is a mode resembling FEC AMTOR used in commercial applications. TDM uses one sub-carrier, but assigns separate data channels to different time slots.

A Satellite Workhorse



The satellite modems included make the DSP-2232 and 1232 the premier satellite data controllers on the market. The automatic Doppler correction keeps the signals coming in clear. Up/down Doppler shift for PSK modems and outputs for up/down frequency stepping to control the radio's frequency included. The onboard 9600 bps modem lets you bounce packets off satellites and communicate with terrestrial stations at a blazing rate. With the optional AEA WeFax 256, receive real-time, true grayscale images from either NOAA HF WeFax Service or the NOAA APT Satellite Service. Take a look at the Satellite modems available to you (listed to the right) and you will see how AEA has engineered the DSP-2232 and DSP-1232 to be the best tool for working the satellites.

Full upgrade from 1232 to 2232

If you choose to buy the 1232, you can fully upgrade to the 2232 at any time. We will send you all the hardware you need to have the most powerful DSP Multi-mode data controller made.

Modes and Modems for the DSP-2232 and the DSP-1232

Modes	
Send and receive	ASCII, AMTOR (ARQ & FEC), Baudot, Fax (2-color), Morse code, Packet (AX.25 and KISS), PACTOR
Receive only	Signal Identification, AMTOR ARQ Listen, Bit-inverted Baudot RTTY, NAVTEX, TDM, 250 gray shade fax, PACTOR Listen
Modems	
Port 1	RTTY/TOR 170: 2125/2295, RTTY/TOR 170: 1445/1275, RTTY/TOR 425: 2125/2250, RTTY/TOR 850: 2125/2975, RTTY/TOR 200: PACTOR 2110/2310, RTTY/TOR 200: PACTOR 1460/1260, Packet 300 bps HF 2110/2310, Packet 300 bps HF 1460/1260, Packet 1200 bps VHF, Packet 1200 bps PACSAT, Packet 1200 bps PSK, Packet 2400 bps V.26B, Packet 4800 bps PACSAT, Packet 4800 bps PSK, Packet 9600 bps FSK K9NG/G3RUH, Morse 750 Hz, Analog Fax HF, Analog Fax APT, Analog SSTV, DSP data 400 bps OSCAR-13, RTTY/TOR 1200 bps ASCII OSCAR-11, DSP data spectrum, Packet 1200 bps MSK, Packet 2400 bps MSK
Port 2	Packet 200 bps HF 2110/2310, Packet 1200 bps VHF, Packet 1200 bps PACSAT, Packet 2400 bps V.26B, Packet 9600 bps FSK K9NG/G3RUH, DSP data 400 bps OSCAR-13, Packet 1200 bps MSK, Packet 2400 bps MSK
Dual port	RTTY/TOR 170: 2125/2295; Packet 300 bps HF 2110/2310; Packet 1200 bps VHF; RTTY/TOR 200: PACTOR 2110/2310;; Packet 300 bps HF 2110/2310; Packet 1200 bps VHF; RTTY/TOR 200: PACTOR 2110/2310; Packet 1200 bps VHF; Packet 1200 bps VHF; Packet 1200 bps VHF

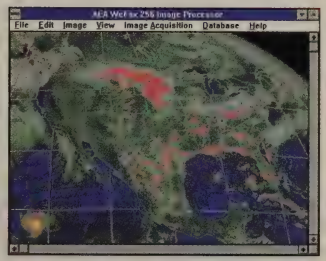
Digital Satellite Accessories

WeFax 256

ST-1

And Now For the Weather...

AEA's WeFax 256 is the Microsoft Windows-based WeFax reception program specifically designed for DSP-2232/1232 and DSP-232 (shown later in this catalog) owners. WeFax 256 displays, in real time, gray scale images from the NOAA HF WeFax Service and the NOAA APT Satellite Service.



Two resolutions (500 or 250 pixels per line) insure WeFax 256 will work on your system.

There is a scrollable receive buffer capable of operating in either stop or loop modes. Plus, there is a complete Image Processor, giving you the ability to enhance the WeFax image. Colorize images and convert them to .BMP, .GIF, .PCX, .TIF, and .JPG image formats. You can even configure the program for unattended captures of WeFax images.

Requires an AEA DSP-based multi-mode TNC with a receiver and antenna system for either HF, APT VHF, or microwave operation; a 386 PC-compatible computer capable of running Windows 3.1 or better, 5 MB of free hard disk space , and a VGA 256-color monitor and video card or better.

Complete Satellite Tracking

AEA has the solution for tracking and tuning— the ST-1. The ST-1 offers satellite users hardware and software for automatic antenna tracking and automatic transceiver tuning.

AEA's ST-1 Satellite Tracker

Here's how it works

As the satellite nears the horizon, the ST-1 points the antennas in the proper direction and tunes the rig to the right up-link and down-link frequencies. As the satellite moves into the field of view, the ST-1 controls the antenna's tracking. The ST-1 also controls transceiver tuning and corrects for the Doppler shift throughout the pass. The ST-1 makes low orbit satellite tracking and tuning as simple as it could possibly be!

Works with popular software

To use the ST-1, you need an IBM PC-compatible computer. The software that comes with the ST-1 is a completely resident program (TSR). Software such as InstanTrack, QuikTrak, RealTrack, PG_AEA, PB, and PG are fully compatible. The ST-1 even allows unattended operation on Packet satellites (PACSATS)! The ST-1 is a stand-alone unit, so your expansion slots are safe. When turned off, the PC's serial and parallel ports are passed through, so you don't lose them. Its small footprint allows it to fit most anywhere.

Controls Rotors & Radios

The ST-1 automatically controls the Yaesu 5400/5600 Azimuth-Elevation rotors and can be used with other rotors as well. The ST-1 also automatically tunes many transceivers including the FT736, TS-790, IC-970, and the IC475/275. RS-232 adapters are not required for these radios either.

Requires

Requires an IBM PC-compatible computer capable of running InstanTrack, QuikTrak, or RealTrack and 13.6 VDC @ 1A.

PK-900

Simultaneous Dual Port Multi-Mode Data Controller

Advanced Electronic Applications, Inc.
P. O. Box C2160 • Lynnwood, WA 98036
Phone: (206) 774-5554 • Fax: (206) 775-2340

A Multi-Mode Powerhouse

The real strength of the PK-900 is its superior design. It's a no-compromise data controller designed for dual port multi-mode operation. All the standard modes are included: PACTOR, Packet, AMTOR, ASCII, Baudot, Morse, B&W Fax transmission and reception, as well as ARQE3, NAVTEX, TDM, 16-level gray scale fax with false-color enhancement (optional software available), and signal identification when you're scanning the bands. Now, with the latest update to the firmware, the PK-900 has GPS capabilities. Three dedicated processors (one for the system and one for each radio port) and an innovative circuit design offer unmatched power and flexibility. Its performance is comparable to units costing hundreds, even thousands of dollars more.

Features

- *Dual simultaneous ports*
- *True Gateway*
- *GPS firmware*
- *Hardware Memory ARQ*
- *Signal identification (SIAM™)*
- *Node operation*
- *True DCD State Machine*
- *Hardware HDLC*
- *8-pole Chebyshev filter*
- *Modem disconnect header*
- *9600 bps option*
- *AEA FAX III option*
- *AEA Host mode*
- *LCD readout*
- *Windows™ control program available*
- *CW key out jacks*
- *External AFSK adjustments*
- *TCP/IP compatible*

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Works with Windows 3.1 & '95
HD 3.5" disks & manual supplied
$129.00 Value!

Dual Simultaneous Radio Ports

Switch between radio ports with a keystroke and still receive simultaneous signals from both ports.

SIAM™ detects inbound signals

Signal Identification & Acquisition Mode automatically detects incoming Baudot, ASCII, AMTOR/SITOR, PACTOR, and TDM signals, and with a few keystrokes switches to the recognized mode and starts displaying data. For example, you may find a RTTY signal that sounds normal, but won't print on your screen. You can use SIAM and find that the other operators are using USB, instead of LSB. Press one key and the PK-900 will switch to the inverted mode and copy will begin to flow across the screen.

The Power of Gateway

Gateway from Packet to AMTOR, Packet to PACTOR, and Packet to Packet. Under your control, packet users connecting to Port 2 can monitor and link to other AMTOR, PACTOR, and even packet stations using the HF radio on Port 1. The Gateway firmware of the PK-900 lets other digital operators use your PK-900 as a node, which helps free channel traffic, resulting in increased throughput for all. The way AEA designed the Gateway allows the PK-900 to identify TCP/IP, TheNet, and NETROM stations so you always know "who is out there." There are two Gateway heard lists: one for stations heard and one for nodes heard. With Gateway, you also have control of who can connect to the PK-900.

Full Featured MailDrop

There is 17K of battery-backed, dynamically allocated mailbox space for Packet, AMTOR, and PACTOR messages. MailDrop automatically controls third-party traffic and receive, forward, and reverse-forward messaging.

Superior Filtering—the true sign of quality

The success of any HF data controller can be boiled down to the quality of filters it offers. AEA's PK-232MBX, the most popular multi-mode data controller ever, was designed with great filters. The PK-900 borrows filtering technology from the PK-232 and then goes a leap beyond. The high-performance bandpass filter limiter discriminator gives you excellent filtering on Port 1. The 8-pole Chebyshev bandpass filter offers six software-selectable tone shifts—170-100Hz. The 6-pole, post detection linear phase low pass filter is optimized for data rates from 45 to 2000 baud. We dare you to compare the filtering of any other multi-mode to the PK-900. AEA has included hardware memory ARQ. There is even Packet Lite for enhanced HF operation. The PK-900 has the high technology filtering and features necessary to make contacts in marginal HF conditions, like those existing today.

Specifications for the PK-900

Demodulator	Port 1: 8-pole Chebyshev bandpass filter, 4-pole discriminator, 5-pole post-detection low pass filter. Port 2: AMD 7910 Modem
Modulator	Programmable phase-continuous sinewave, AFSK generator
Modulator output level	5-100 mV RMS
Processor system	Hitachi 64180, Motorola 68HC05B4, Motorola 68HC05C4
RAM	64K Lithium battery-backed
ROM	Up to 256K
Hardware HDLC	Zilog 8530 SCC
Power requirements	+12 to +16 VDC @ 1.1A
Input/Output Connections	
Radio interface	Two 5-pin DIN connectors
Direct FSK outputs	Normal/Reverse
CW keying output	+100 VDC @ 100 mA max or -30 VDC @ 20 mA
Terminal interface	RS-232-C 25-pin DB-25 connector with hardware/software handshake
Terminal data rates	Autobaud settings at 300, 600, 1200, 2400, 4800, 9600, and 19,200 bps
Printer interface	IBM compatible 25-pin bi-directional parallel port (DB-25 connector)
Physical	
Dimensions	11.8" (300mm)W x 12" (305mm)D x 3.5" (89mm)H
Weight	6 lbs, 4 oz (2.84 kg)

Connect with the PK-900

AEA's design philosophy is easily seen when you look at the number of input/output connections on the back of the PK-900. The engineers at AEA are digital operators themselves and know the importance of having easy access to input and output connectors.

GPS Firmware

This firmware lets you remotely control the GPS commands, remotely poll the PK-900 for position information, and even remotely program various GPS receivers. Stand Alone Tracking is possible. The firmware is compatible with GPS, Loran, ARNAV, and Ultimeter II weather stations. With the PK-900, you can transmit position information in HF or VHF packet on Port 2 and work other HF stations on Port 1. You can transmit your position at 9600 bps with the option board on Port 2.

LCD display

The large, easy-to-read backlit display provides all status and mode information for both ports. A 20-segment multi-mode bar graph makes HF tuning easy. Also informs you of new Packet, AMTOR, & PACTOR mail!

You're in Command

AEA has special commands which make the PK-900 a superior performer. The ARXTOR command allows for detection of AMTOR or PACTOR signals, identifying which type of signal it is, and switching your PK-900 to that mode. The CFROM and DFROM commands let you choose who may or may not connect to the PK-900. AEA is devoted to providing digital operators command sets which are easy to use and powerful.

Control your controller

All AEA data controllers are equipped with AEA's extensive Host mode for superior software support. The PK-900 can be used with AEA's PC PakRatt for Windows™ for Microsoft Windows users, AEA's PC PakRatt II for DOS for other IBM-compatible users, AEA's MacRatt III for Macintosh users, as well as many other popular control programs.

The future is in 9600 baud

9600 bps packet is the wave of the future and the optional 9600 bps packet board makes getting up to speed easy. The 9600 bps modem is K9NG and G3RUH compatible, allowing you to bounce packets off satellites or communicate with terrestrial stations at speeds up to eight times as fast as the conventional 1200 bps rate.

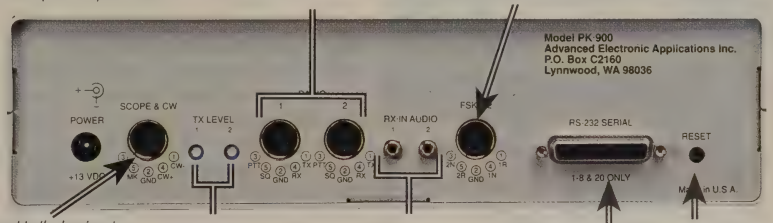
Installing the 9600 bps option board is very easy. You open the PK-900 cover, remove four screws from the PC board, add four spacers, plug in the board, and replace the screws.

You don't just buy the front of a data controller. . .

Why not just use a PCB data controller? Why not go for the smallest data controller? Take a look at the back of AEA data controllers and you will see why. We have built our controllers to make life simpler for you. There are more input connections, more output connections, more external adjustments, and room for future growth and upgradability. PCB data controllers are difficult to work with. Small controllers don't provide proper connections and expandability. AEA has engineered data controllers that are compatible with the equipment you have now, offer convenient adjusting, and are upgradable for future applications.

The PK-900 has two radio ports that you can use at the same time. Radio Port 1 lets you use all the VHF & HF modes. Radio Port 2 lets you use HF & VHF packet, at speeds up to 9600 bps with option board.

Instead of going through the mic jack, use the FSK connector which allows you to use your transceiver to change tones for the HF modes like RTTY & AMTOR.



Connect to the key input on your radio, type on the computer, & transmit CW. Also doubles as a tuning scope connector.

Individual transmit level adjustments for both radio ports

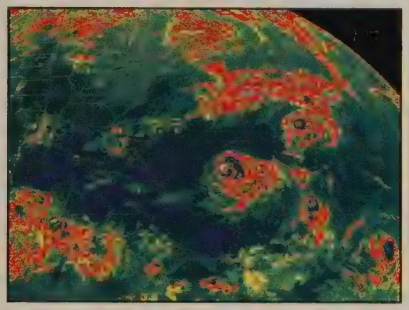
The receive audio in connectors (1 for each radio port) lets you receive audio without using the mic jack. Great for the SWLs.

RS-232 Serial Computer Port

External reset button

Winter Warning!

AEA FAX III 900 is an optional WeFax receiving software program for the PK-900 that lets you get the weather from ground stations—no more waiting for the news. All the features that are in AEA FAX III are included in the FAX III 900—the only difference is that you won't get a demodulator with the FAX III 900 because the hardware is already built into the PK-900. With this program, you can receive WeFax images in 16 shades of gray, then colorize the images with the 256 color palette. Then you can export the images to .PCX or .GIF files for use in other applications.



AEA FAX III 900 for WeFax Reception

You want modems?

The PK-900 offers twenty software selectable modems. There are optimized modems for AMTOR, PACTOR, 45 baud teletype, and packet. There is even a disconnect header, so you can plug in your own modem. Modem selection is as easy as typing a command for the one you want.

Modems Include:

Port 1: FSK 45 bps 170 Hz, FSK 100 bps 170 Hz, FSK 45 bps 200 Hz, FSK 300 bps 200 Hz, FSK 100 bps 425 Hz, FSK 100 bps 850 Hz, Analog, Fax, FSK 300 bps 200 Hz, FSK 1200 bps 1000 Hz, Morse.

Port 2: HF Packet, VHF Packet, Internal option for 9600 baud, and modem disconnect header.

Accessories for your PK-900:

For true cutting-edge digital operation, consider these products:

IsoLoop 10-30 HF Antenna
A small loop antenna with big antenna performance. Great for amateurs with limited space.

IsoPole Antenna
Superior performing decoupled VHF antenna.

PC PAKRATT for Windows™
Windows software that makes it easier to use the full capabilities of your PK-900.

DM-1 Deviation Meter
Deviation Meter makes setting deviation for 9600 bps Packet operation simple.

For the following options, call our upgrade hotline at (206) 774-1722:

AEA FAX III 900 Option
Receives and displays fax signals in 16 shades of gray and in false-color as shown above.

9600 bps Option
Work satellites or terrestrial stations at 9600 bps. High Performance, easy installation.

IsoLoop

AEA's IsoLoop 10-30 gives you high-Q in tight places

Advanced Electronic Applications, Inc.
P. O. Box C2160 • Lynnwood, WA 98036
Phone: (206) 774-5554 • Fax: (206) 775-2340

High Performance Antenna

This high efficiency antenna is perfect for amateurs living in areas with antenna restrictions! The IsoLoop antenna exhibits a significant engineering breakthrough with its high performance, low profile design. It covers 10-30 MHz continuously at 150 watts and makes it possible for hams to enjoy their hobby in what may seem to be an impossible location.

Features

- *10-30 MHz HF loop antenna*
- *High efficiency*
- *Large, 10,000 Volt capacitor*
- *Stepper motor control of capacitor*
- *Separate DC and coax feedlines to antenna*
- *Direct link coupled feedline*
- *All aluminum construction is iridited to fight corrosion*
- *Flat loop design provides more outer surface for radiating*
- *Flexible loop allows access into tight spaces, like attics*
- *Stainless steel hardware used throughout*
- *Injection molded casing reduces warping & swelling in extreme conditions*
- *LC-2 manual tuner is included*
- *Optional IT-1 Automatic Tuner available*
- *Limited one year warranty*

Mount It However You Want

The antenna is omnidirectional and requires no rotor or station antenna tuner. It can be mounted horizontally or vertically. Horizontal mounting is preferred for best DX performance due to the lower angle of radiation at low heights. It also allows for easy attic installation. Mounting it vertically provides a null in a specified direction. The flexible, iridited aluminum loop band has a very low radiation resistance—ranging from 0.2 to 0.4 ohms!

Stealth, yet powerful

Compact Design

Operate your favorite band from areas with restrictive zoning ordinances! And the IsoLoop's loop is flexible, so it can squeeze through attic openings and other tight spaces where other loop antennas can't.

The Capacitor

The large capacitor is rotated by a low-noise precision stepper motor, so exact tuning is a breeze. Because of the stepper motor, the IsoLoop realizes less backlash and better tuning without noise.

Portable

High Performance

Efficiency ranges from 96% on 10 meters to 72% on 20 meters. The custom designed, split-stator capacitor has no rotating contacts and is rated at 10,000 volts. The large capacitor can withstand higher voltages, therefore, the antenna can be higher Q and more efficient than other loops on the market.

Go Anywhere

The IsoLoop is compact, round, measures only 35" in diameter and weighs only 14 pounds. The actual loop is flexible so it can squeeze through tight openings such as an attic door—something other loops can't do. Because it comes fully assembled and operates on 13.8 VDC, it is the ideal antenna for Field Day and DX peditioning. Use it on a boat, a mobile home; take it wherever you wish!

Comes with. . .

It comes with an AC-1 power supply (U.S. model only), LC-2 tuner with frequency indicator, an operating manual, and a 50-foot (15.25 M) shielded control cable. Extension cables are available. The mast and coax are not included, and for good reason. You will want to get the right type of mast for your application; a mast for an IsoLoop used on a boat may be a different size and shape than that for use in an attic.

Specifications for the IsoLoop 10-30

Frequency coverage	10 to 30 MHz, continuous	
Nominal impedance	50 ohms	
Power rating	150 watts	
VSWR	Less than 1.5:1 (no nearby obstructions)	
Temperature	Operating	0 to 150°F (-17 to 65°C)
	Storage	-50 to 200°F (-45 to 93°C)
Dimensions	35" (89cm) diameter circle	
Max. mast diameter	2" (51mm)	
Weight	Actual: 14 lbs (6.35 kg)	Shipping: 25 lbs (11.34 kg)
Coax connector	UHF (SO-239)	
Gain over dipole	Depends on elevation	

Optional LC-2 shielded control cable with connectors available in 50' (15.25 M) and 100' (30.5 M) lengths.

What's in a Name?

Why would we call our premier new product DSP-232? As you can guess, it is a combination of the legendary PK-232 and Digital Signal Processing (DSP for short). PK-232 is a nickname for the PakRatt Model PK-232 Multi-Mode Data Controller. What's PakRatt? It is a contraction that people at AEA came up with for packet/radioteletype, while working on the PK-64 years ago. The DSP-232 name shows AEA's merging of cutting-edge technology with a 19 year tradition of excellence. As you can see by the features, the DSP-232 is the new standard by which other manufacturers' equipment will be judged by.

Power Filtering with DSP

The DSP-232 continues the AEA tradition of quality signal filtering technology. Incoming signals are digitized by a high speed, analog-to-digital converter. The digitized data is then digitally filtered and analyzed by the on-board digital signal processor. The processed demodulated signals are then passed to a second processor for protocol conversion. The reverse procedure takes place when you transmit. DSP gives the DSP-232 a better shape-factor than analog filters. In addition to the DSP, we've included hardware memory ARQ for reduced errors. All this makes the DSP-232 the data controller of choice for those who want to connect in poor HF conditions.

Packet Power

Run 9600 or 1200 bps VHF and 300 bps HF packet. There is a true DCD state machine for hearing signals with an open squelch when operating 9600 and 1200 bps packet. Full-duplex packet capability lets you speed up communications by sending and receiving simultaneously. KISS mode provides compatibility with the TCP/IP protocol. There are even special GPS capabilities which allow mapping and tracking in packet.

Packet Satellites

You can use the ultimate nodes, the BBSs in the sky—the satellites! Use 9600 bps PSK PACSATs. Take advantage of the satellite's store-and-forward capability. The satellites are up there, use them with the DSP-232.

Control Software

AEA offers a whole line of state-of-the-art control software programs. Microsoft Windows™ users can use the powerful PC PakRatt for Windows. DOS-based users will appreciate PC PakRatt II for DOS. Macintosh users will enjoy the new MacRatt III.

Global Positioning System

A GPS-specific command set is included in the DSP-232. These commands allow the controller to be used in Stand Alone Tracking, where you take the unit mobile and transmit your position to other packet operators using Automatic Packet Reporting System software. Remote programming allows you to set and change vital GPS commands from a remote location. You can also use AEA's optional APRS adapter cable to connect a GPS receiver and a DSP-232 to a single COM port on your computer. The DSP-232 is GPS, Loran, and ARNAV compatible. It is even ULTIMETER-II compatible which allows you to set up a weather net or to hear weather nets.

Connect with the DSP-232

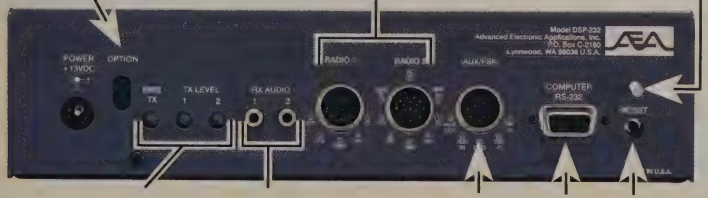
The DSP-232 has a rear panel connections for direct-FSK/Auxiliary to take advantage of your tone generating radio and AFSK port one and two. AEA gives you both the direct FSK and the AFSK options for optimum flexibility. There are two radio connections (one for each radio port), two receive audio connections (one for each radio port), plus an RS-232 computer interface. There is even an 'option' slot for future advancements—we mean it when we say this is the digital platform for the future!

The back — Just as important as the front

This 'Option' space is set aside for future applications, the DSP-232 is designed for growth!

The DSP-232 has two radio ports that you can switch between. Radio Port 1 lets you use all the VHF & HF modes. Radio Port 2 also lets you use all VHF & HF modes, plus packet at 9600 bps.

This is a feature you've wanted for years, a station ground right on the TNC.



Individual transmit level adjustments for both radio ports, plus another adjustment specifically for 9600 bps packet operation.

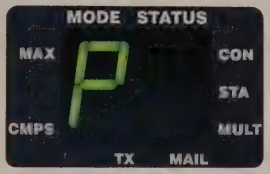
The receive audio in connectors (1 for each radio port) let you receive audio without using the mic jack. Great for the SWLs.

FSK connection for using your transceiver to change tones on HF modes.

RS-232, DB-9 computer interface

External reset button

DSP-232 Display Window



The DSP-232's unique display was born from experience. Over the last 19 years, we've built data controllers with LED lights, but they can't show the total status of the system. We've also used LCDs which are great—but rather spendy. This 7-segment LED display is the perfect solution to displaying system status in an easy-to-read format.

Mode & Status Display

The DSP-232's unique mode and status LED readout displays important system status at all times. The display is easy to see, even from across the room. Once you become accustomed to reading the display, you will wonder why all data controllers don't use it.

Special Commands

You get the GPS-specific commands which are remotely programmable & remotely pollable. There is the ARXTOR command which detects AMTOR or PACTOR signals and switches to the mode. CFROM and DFROM let you choose who connects to your TNC (radio port specific). And there is an EXPERT disable which reduces the command set to often used commands for beginners. There is the special TWIST command that allows you to optimize the 1200 bps VHF modem performance. There are lots more of these kinds of features in the works.

Accessories for your DSP-232:

For true cutting-edge digital operation, consider these products:

IsoLoop 10-30 HF Antenna
A small loop antenna with big antenna performance. Great for amateurs with limited space.

IsoPole Antenna
Superior performing decoupled VHF antenna.

PC PAKRATT for Windows™
Windows software that makes it easier to use the full capabilities of your DSP-232.

DM-1 Deviation Meter
Deviation Meter makes setting deviation for 9600 bps Packet operation simple.

WeFax 256
AEA's Windows-based satellite WeFax receiving program.

For the following option, call our upgrade hotline at (206) 774-1722:

AEA FAX III 900 Option
Receives and displays fax signals in 16 shades of gray and in false-color.

PK-232

Dual Switchable Port Multi-Mode Data Controller

Advanced Electronic Applications, Inc.
P. O. Box C2160 • Lynnwood, WA 98036
Phone: (206) 774-5554 • Fax: (206) 775-2340

NEW GPS

Time-Tested Performance

The PK-232MBX is the most popular multi-mode data controller in the world, with over 80,000 in service. Ask around; you are sure to find many proud PK-232 MBX owners. The PK-232MBX combines all standard modes in one comprehensive unit, it offers PACTOR, VHF/HF Packet, AMTOR/SITOR, Morse, RTTY (Baudot/ASCII), black & white WeFax, TDM, as well as the commercial standard NAVTEX automated marine information service. The filtering power and AEA's dedication to providing upgrades have helped make the PK-232MBX a legend.

Features

- *All popular HF and VHF modes*
- *Two switchable radio ports*
- *Gateway as a node*
- *Hardware HDLC*
- *Full MailDrop facility for Packet, PACTOR, and AMTOR*
- *Signal identification (SIAM™)*
- *New GPS firmware*
- *Advanced command set*
- *Identifies TCP/IP, TheNet & NetRom*
- *20 front panel indicators*
- *Advanced signal filtering design*
- *CW key out jacks*
- *External AFSK adjustment*
- *External threshold control*
- *Black & white WeFax*
- *Windows™ program available*
- *Macintosh™ program available*

GPS Firmware

We've added GPS commands to the PK-232MBX. Using APRS™ (WB4APR), you can map other HF & VHF packet users. GPS firmware is GPS, Loran, ARNAV, and ULTIMETER-II compatible. Commands are remotely programmable and remotely pollable. Allows for Stand Alone Tracking. Upgrades available for early models.

Gateway as a Node

The Gateway firmware will support local acknowledgment (acks) of packets like a full-service node does. Using the node feature instead of digipeating increases throughput and reduces channel traffic. The Gateway also allows identification of TCP/IP, TheNet, and NETROM stations.

Full Featured MailDrop

There is 18K (32K RAM) of mailbox space for Packet, PACTOR, and AMTOR messages. The MailDrop uses a subset of popular W0RLI/WA7MBL commands plus includes AEA commands such as CFROM and DFROM for selectively choosing who may connect to your unit, MFROM and MTO commands for selecting what stations are heard when monitoring, and the enhanced MHeard which displays the 18 most recently heard stations and nodes, and gives the time and dates heard. MailDrop allows the local BBS to automatically forward and reverse-forward messages to and from your station. The PK-232MBX can also be used as the data controller "front end" with most popular BBS programs.

AEA's Legendary PK-232 Multi-Mode Data Controller

Advanced Modems & Filtering

This unit is designed specifically for multi-mode operation—the modems and filtering systems are proof. Its internal modem can transceive packet at rates from 45 to 1200 bps (2400 bps optional), with the option of using an external modem for higher baud rates. Also features a no-nonsense VHF/HF/CW modem with an 8-pole Chebyshev bandpass filter, followed by a limiter-discriminator with automatic threshold correction. The modem can copy shifts from 85 to 1500 Hz in two ranges.

Switchable Radio Ports

Two switchable radio ports let you connect to an HF and VHF radio, and switch via buttons on the front panel.

SIAM™

AEA's revolutionary Signal Identification & Acquisition Mode technology automatically identifies incoming signals, switches the PK-232MBX to the recognized mode, and starts displaying the data.

Specifications for the PK-232MBX

Demodulator	8-pole Chebyshev bandpass filter, limiter, 4-pole discriminator, 5-pole post-detection low-pass filter
Modulator	Phase continuous sinewave, AFSK generator
Modulator output level	5-200 mV RMS
Processor system	Zilog Z-80
RAM	32K Lithium battery-backed
ROM	128K
Hardware HDLC	Zilog 8530 SCC
Power requirements	+12 to +16 VDC @ 850 mA (1A recommended)
Input/Output Connections	
Radio interface	Two 5-pin connectors, front panel selectable
Direct FSK outputs	Normal/Reverse
Scope outputs	Mark, space
CW keying outputs	+100 VDC @ 200 mA max and –25 VDC @ 30 mA max
Terminal interface	RS-232-C 25-pin DB-25 connector
Terminal data rates	Autobaud settings at 300, 600, 1200, 2400, 4800, & 9600 bps
Printer interface	Centronics parallel printer output with optional cable
Physical	
Dimensions	11" (279mm)W x 8.25" (210mm)D x 2.5" (64mm)H
Weight	3 lbs (1.35 kg)

What is right for you?

AEA Controllers at a glance

Compare the features of our data controllers to see which piece of equipment is right for you. Do you want the top of the line data controller, with the most technically advanced components for both VHF and HF? Do you want to use the satellites? Are you a digital DXer? Or, do you just want to experiment with the new packet GPS applications? You know what you are most interested in better than anyone. Refer to the chart below to find the data controller that fits your needs. If there is any sort of feature you need that isn't listed below, give us a call, fax, or write us a letter. We will let you know what piece of AEA equipment is right for your application. You can also call AES, they know their stuff when it comes to digital equipment.

Data Controller Product Comparison Chart

	DSP-2232/1232	PK-900	DSP-232	PK-232	PK-96	PK-12
Dual simultaneous port	Y/N	Y	N	N	N	N
Multi-mode data controller	Y	Y	Y	Y	Packet Only	Packet Only
Cross mode Gateway	Y/N	Y	N	N	N	N
Cross frequency Gateway	Y/N	Y	N	N	N	N
PACTOR/AMTOR MailDrop	Y	Y	Y	Y	N/A	N/A
Packet MailDrop	Y	Y	Y	Y	Y	Y
18K (32K RAM) Mailbox	Y	Y	Y	Y	Y	Y
Mailbox expandable to 100K (128K RAM)	N	N	Y	N	Y	Y
Mailbox expandable to 242K (256K RAM)	N	N	Y	N	N	N
Runs on a 9 volt battery	N	N	N	N	N	Y
WeFax reception with false color	OPTION	OPTION	OPTION	N	N	N
B&W fax	Y	Y	N	Y	N/A	N/A
9600 bps VHF packet	Y	OPTION	Y	N	Y	N
PSK satellite modems	Y	N	Y	N	Y	N
Hardware HDLC	Y	Y	Y	Y	Y	N
Software HDLC	N	N	N	N	N	Y
DCD State Machine	N	Y	Y	N	Y	N
19,200 TBAUD	Y	Y	Y	N	Y	Y
Hardware Memory ARQ	Y	Y	Y	Y	N/A	N/A
SIAM™	Y	Y	Y	Y	N/A	N/A
Global Positioning System (GPS) firmware	N	Y	Y	Y	Y	Y
Remotely programmable GPS commands	N	Y	Y	Y	Y	Y
Remotely pollable for GPS information	N	Y	Y	Y	Y	Y
Node operation	Y	Y	Y	Y	Y	Y
Identifies TCP/IP, TheNet, & NetRom	Y	Y	Y	Y	Y	Y
TheNet X-1J mountaintop node ability	N	N	N	N	Y	N
LCD readout	Y/N	Y	N	N	N	N
LED readout	Y	N	Y	Y	Y	Y
External reset button	Y	Y	Y	N	Y	N
Separate AFSK controls	Y/N	Y	Y	N	Y	Y
Digital signal processing	Y	N	Y	N	N	N
AEA DOS control software available	Y	Y	Y	Y	Y	Y
AEA Windows control software available	Y	Y	Y	Y	Y	Y
AEA Macintosh control software available	Y	Y	Y	Y	Y	Y
AEA Commodore control software available	N	N	N	Y	N	Y
Terminal control software included	N	N	N	N	Y	Y

Y = Yes N = No OPTION= Option N/A = Not applicable to Packet-only TNCs

For pricing on all AEA products, see the price list in the front of the AES catalog.

Advanced Electronic Applications, Inc.
P. O. Box C2160 • Lynnwood, WA 98036
Phone: (206) 774-5554 • Fax: (206) 775-2340

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PK-96

9600/1200 bps Packet TNC

NEW GPS

Features

- *9600/1200 bps Packet Ready*
- *GPS firmware standard*
- *Remotely programmable GPS commands*
- *Stand Alone Tracking*
- *Gateway as a Node*
- *Hardware HDLC for accuracy*
- *True DCD to hear weak signals*
- *Gateway as a Node*
- *TheNet X-1J Node firmware option available*
- *Full MailDrop facility*
- *AEA's PC PakRatt Lite™ terminal control software included*
- *APRS™ software Included*
- *AEA Host mode*
- *Advanced command set*
- *Identify TCP/IP, TheNet & NetRom*
- *Separate external TX adjustments for 9600 and 1200 bps*
- *External reset button*
- *Windows™ program available*
- *Macintosh™ program available*

Rave Reviews

QST
September 1994

CQ
July 1994
November 1994
February 1995
March 1995

Amateur Radio Trader
February 1995

World Radio
February 1995

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Information Super Skyway

AEA has been researching and developing wireless digital communication devices for 19 years, providing digital operators with the most reliable and powerful equipment available. The performance of the PK-96 shows AEA's commitment to quality. The PK-96 is a plug-in and go 9600/1200 bps TNC loaded with exciting features. AEA engineered the PK-96 to allow people to easily step up to 9600 bps. This was accomplished by employing proven TNC hardware, utilizing AEA's powerful command set, and including convenient features not found in other TNCs.

Versatility in Modems

The 9600/1200 bps PK-96 comes with 1200 bps AFSK tone signaling, as well as 9600 bps K9NG and G3RUH compatible direct frequency modulation, making it a truly high performance data controller. There is even a modem disconnect header for installing other modems. The PK-96 not only makes an excellent terrestrial data controller, it can also be used for high-speed data links between packet systems. In addition to the modems, the AEA engineers included separate TX pots for 1200 bps and 9600 bps on the back panel, plus an external reset to return the TNC to factory defaults.

Data Carrier Detect (DCD)

The PK-96 has a "true" DCD state machine for open squelch operation which allows communication even when your contact's signal is weak.

Hardware HDLC

The PK-96 utilizes an HDLC hardware controller for accurate protocol conversion at 9600 bps. The HDLC chip acts as a co-processor, helping the PK-96 send and receive more data in a shorter amount of time.

Full Featured MailDrop

In addition to the speed, the PK-96 comes standard with 18K (32K RAM) of battery-backed MailDrop memory which is easily expandable to 100K (128K RAM). The MailDrop controls 3rd party traffic, mail forwarding, and reverse forwarding to your local BBS. There are also commands allowing you to choose who may or may not connect to the PK-96.

AEA's PK-96 9600 and 1200 bps Packet Terminal Node Controller

Gateway as a Node

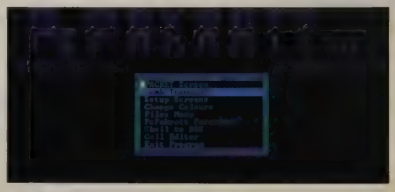
The Gateway firmware acts as a full service node. Three users can use your PK-96 as a Gateway, you can communicate with another station, someone can be leaving you a message in your mailbox, and others can digipeat through your TNC—all at once. Gateway also lets you identify TCP/IP, TheNet, and NETROM stations. As with MailDrop, you have control of which callsigns can use your Gateway. Gateway has two heard lists: one for stations heard and one for nodes heard.

TheNet Compatible

Now network node builders can add a 9600 bps port to their TheNet network node with no hassles. Dave Roberts, G8KBB, has written a special TheNet X-1J firmware version specifically designed for the PK-96. This special firmware is only available from AEA. To get more information about the PK-96 X-1J TheNet firmware, call AEA's Information Request Line at (206) 712-8054.

Software Included

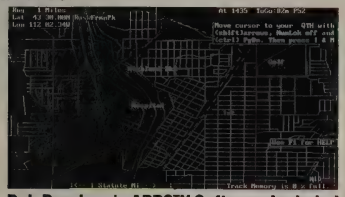
AEA's PC PakRatt Lite™ is now included with every PK-96—a $50 value. What we include is better than what other manufacturers sell. This DOS-based, menu-driven software will make operating the PK-96 easy, plus it has added features such as on-screen help, macro key facility, and much more! *(See below for screen shot.)* Also included is the GPS mapping program APRS™, developed by Bob Bruninga, WB4APR.



AEA's PC PakRatt Lite™ Included

GPS Firmware

The PK-96 includes GPS compatible firmware. The PK-96 is fully compatible with Bob Bruninga's Automatic Packet Reporting System (APRS™) software—a shareware version is even included with your purchase of a PK-96.



Bob Bruninga's APRS™ Software Included

Remote GPS programming features add power to your TNC. The firmware allows remote programming of GPS commands. This is very handy when the TNC is installed in a vehicle—you don't need to take the unit out to change commands. The firmware also allows remote polling, so you don't have to wait for the TNC to transmit—you can force it from a remote location. Some GPS connected receivers can even be remotely programmed via the PK-96.

The firmware also allows the TNC's time and date to be set from the GPS satellite. A radio control head button can be configured to send GPS information with the touch of a finger. Two NMEA strings (the data containing location information) can be programmed into the TNC. New GPS receivers give all the information you need in one string: latitude, longitude, course, and speed. We included the second string parsing ability in case where you own an old GPS receiver which doesn't have all the information in one string.

GPS configurations:

1) Stand Alone Tracking. This is where you connect a GPS receiver and a radio to your PK-96 in your vehicle. The position information received from the GPS receiver is beaconed via packet radio so others can track you.

The Thrill of Victory

When Brian Battles, WS10, of the ARRL called and asked if we wanted to help provide communications equipment for the 1995 Special Olympics in Connecticut, we said, "Sure!" We donated one of the legendary PK-232MBXs, one IsoLoop 10-30 HF antenna, and 15 PK-96s. The PK-96s were the real workhorses of the games. Connected to Yaesu FT-1500s, the PK-96s were used up to 12 hours a day for the two-week event. All of the equipment performed perfectly. The TNCs provided communications support for the games and relayed messages to a local BBS. The messages were then sent abroad using HF PACTOR on the PK-232MBX, so kids could communicate with their parents quickly and inexpensively. The true stars are the volunteers. Over 500 amatuer radio operators volunteered their time to the Special Olympics. This is what amatuer radio is about. People taking the time to learn about new equipment and using their talent to help out in times of need. AEA extends thanks to those amateur radio volunteers for taking the time to help.

2) Hardware Single Port Mode. This is where you use the optional AEA APRS Adapter Cable (shown below) to connect the GPS receiver and the TNC to one serial port on the computer. The application is the same as Dual Port Mode, however a computer serial port is saved. Laptop computer users will appreciate this because most only have one port. You can take this set up mobile and see on the computer screen where you are heading and where other users are heading too!

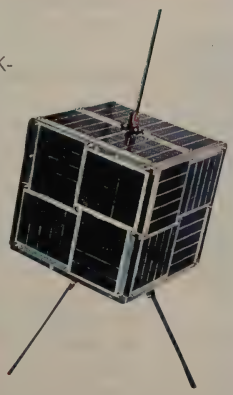
AEA's APRS Adapter Cable

3) APRS Dual Port Mode. This is where you connect the TNC and the GPS receiver to separate serial ports on your home computer. Running APRS software, you can receive position information from other users and actually see them on your computerized map.

4) ULTIMETER II™ Stand Alone Weather Station. ULTIMETER II is a home weather station kit available from PeteBros. You can set up the weather station, connect it to your TNC, and transmit weather information to others in your area. Weather nets can be established with help from friends. All the position and weather information can be seen from the APRS maps. You can really get creative with this set up. You can use the Ultimeter II temperature gauge in your home freezer and remotely access this information to see if your freezer is on, making sure meat doesn't go bad. Imagination is the limit.

Talk to Satellites

The satellites can be your worldwide BBS with the PK-96 PSK modems. Use the PACSATS to store and forward your messages. Even use satellites like a node. Take advantage of this long-distance, line-of-sight communication. The satellites are up there, use them!



Specifications for the PK-96

Demodulator	Texas Instruments TCM-3105 1200/G3RUH and K9NG compatible 9600
Modulator	Phase continuous AFSK 1200/9600 bps direct FSK
Modulator output level	5 mV-1 V RMS rear panel adjustable
Processor system	Hitachi 64180
RAM	32K , expandable to 128K
ROM	64K maximum
Hardware HDLC	Zilog Z8530
Power requirements	+12 to +16 VDC @ 400 mA
Input/Output Connections	
Radio interface	5-pin DIN connector
Terminal interface	RS-232C DB-25 connector
Terminal data rates	Autobaud settings at 300, 600, 1200,2400, 4800, 9600, and 19,200 bps
Physical	
Dimensions	6.13" (156mm)W x 7.4" (188mm)D x 1.35" (34mm)H
Weight	1.2 lbs (0.54 kg)

PK-12

1200bps VHF/UHF Packet TNC with GPS Firmware

Advanced Electronic Applications, Inc.
P. O. Box C2160 • Lynnwood, WA 98036
Phone: (206) 774-5554 • Fax: (206) 775-2340

NEW

Packet Performance

The PK-12 is the successor to the popular PK-88. Optimized internal software and advanced features make the PK-12 the best value in packet radio. The PK-12 is a 1200 bps, VHF/UHF packet controller that is ideal for those looking to get started in digital communications. Yet, because of its cutting-edge features, the PK-12 has the power for operators looking for increased data throughput and to take packet radio a step further.

Features

- *1200 bps, VHF/UHF Packet ready*
- *Gateway as a Node*
- *Full MailDrop facility*
- *Control software included*
- *APRS™ software included*
- *AEA Host mode*
- *Advanced command set*
- *Identify TCP/IP, TheNet & NetRom*
- *GPS firmware & commands*
- *Stand Alone Tracking*
- *APRS Adapter Cable available*
- *Energy efficient*
- *9-Volt battery operable*
- *External TX adjustment*
- *Windows™ program available*
- *Macintosh™ program available*

Specifications for the PK-12

Demodulator	Texas Instruments TCM-3105 1200
Modulator	Phase continuous AFSK
Modulator output level	5 mV-1 V RMS rear panel adjustable
Processor system	Motorola MC68HC11DOP
RAM	32K standard, expandable to 128K
ROM	64K maximum
Power requirements	+12 to +16 VDC @ less than 80 mA
Input/Output Connections	
Radio interface	5-pin DIN connector
Terminal interface	RS-232C DB-25 connector
Terminal data rates	Autobaud settings at 300, 600, 1200,2400, 4800, and 9600bps; manual 19,200bps
Physical	
Dimensions	5.78" (147mm)W x 5.275" (134mm)D x 1.35" (34mm)H
Weight	11.9 oz. (0.34 kg)

Full Featured MailDrop

There is 15K (32K RAM) of mailbox space standard in the PK-12 and, if that's not enough, you can increase the size to 100K (128K RAM). MailDrop controls 3rd party traffic, accepts inbound mail forwarding, and supports reverse forwarding to your local autoforwarding BBS. The internal lithium battery will hold all messages. There are even special commands which let you choose who may leave messages on your PK-12.

AEA's Extensive Host Mode

AEA's version of Host mode is preferred by programmers for its powerful application interface. Because of AEA's Host mode popularity, the PK-12 is compatible with many software programs on the market, including AEA's own PC PakRatt for Windows and the new MacRatt !!!.

Gateway as a Node

The Gateway firmware in the PK-12 allows you and others to "node-hop" to reach other stations, which increases throughput and reduces retries compared to digipeating, (although you can still digipeat if you want). As with MailDrop, you have control of who can connect to the PK-12, for the ultimate in control. Three users can use your PK-12 as a Gateway, you can communicate with another station, someone can be leaving you a message in your mailbox, and others can digipeat through your TNC—all at once. An added feature of the Gateway firmware is identification of TheNet, TCP/IP, and NETROM stations, so you will always know who else is on the air. Gateway has two heard lists: one for all stations heard and one for all nodes heard, including the type of node.

AEA's PK-12 1200 bps Packet Terminal Node Controller

Great Commands

As with all AEA data controllers, the PK-12 has some unique commands built in. The MFILTER command suppresses all graphic and control characters except TAB, CR, and LF. There are GPS-specific commands for wireless tracking. The CFROM and DFROM commands permit selective connecting and digipeating by call signs. The MFROM and MTO commands let you select what stations you hear when monitoring. The MHeard command gives you an updated list of the most 18 most recently heard stations, what time they were heard, and what day. The UBIT and CUSTOM commands allow for PK-12 customization for non-standard applications. There is even an EXPERT disable command which limits the command set and allows beginners to get on the air immediately.

Software DCD

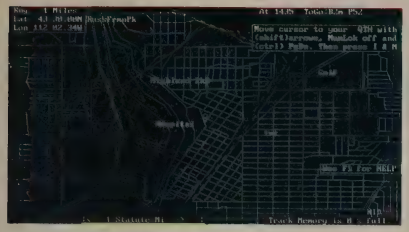
The PK-12's software DCD allows for open squelch operation so you can hear weak signals.

Control Software Included

AEA's PC PakRatt Lite™ (a $50 value), the packet-only, DOS-based control program is included with every PK-12 sold. This program makes controlling AEA's packet TNCs easy. PC PakRatt Lite offers macro key facility, message/command buffers for pre-programming messages, and friendly, on-screen help.

Global Positioning System

The PK-12 has special commands for GPS use, making Stand Alone Tracking possible. Stand Alone Tracking lets you put a GPS receiver, a PK-12, and a radio (no computer required!) in your vehicle and let others track you while mobile. The GPS commands are remotely programmable, so if you install the PK-12 in your car, you won't have to take it out to change parameters. The GPS firmware is compatible with GPS, Loran, and ARNAV; something no other TNC (beside AEA TNCs) can do. The PK-12 is also ULTIMETER-II™ compatible for weather nets and remote weather reporting—have local weather information when you need it!



WB4APR's APRS™ software included

GPS Software Included

With every PK-12 and PK-96 is a copy of the mapping and tracking software APRS™ (Automatic Packet Reporting System). This software was developed by Bob Bruninga, WB4APR, and allows packet operators to map and track other APRS users on a computerized map like the one shown above. APRS users can create maps, save traveled courses and play them back later, send short messages, plus much more!

Made for Mobility

The PK-12 is small, light, tough, and easy to use. It can run on a 9-volt battery and it even has GPS firmware—the ultimate mobile feature. Recently, the PK-12's GPS ability was even put to the test in Death Valley.

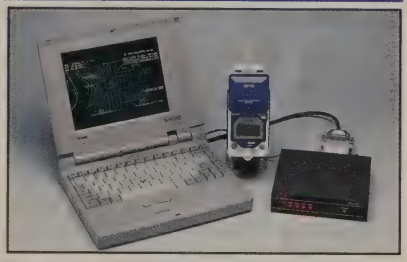
GPS Accessory

AEA's optional APRS Adapter Cable for the PK-12 was designed for Hardware Single Port Mode operation. The cable lets users running APRS devote only one COM port for the GPS receiver and the PK-12. This is a great feature since most computer users only have two COM ports, with one used by a mouse. Laptop users only have one COM port, so the Adapter Cable is a must.

The Death Valley Test

Recently, the PK-12's GPS ability was put to the test in Death Valley during the Baker-to-Vegas Challenge Cup Relay Race run which was televised on ESPN and Prime Sports. For four years, the amateur radio group in Fremont, CA and Mark Keiser, N4OGL, District Emergency Coordinator for the ARRL have volunteered their time to provide support and communication for Team Fremont (Fremont Police Department) during the run. This year, Keiser equipped eight emergency and pace vans with PK-12s, Trimble GPS receivers, and Alinco radios, then tracked the vans using APRS written by Bob Bruninga, W4APR. The systems were put through a rigorous pre-race 150 mile+ test. During the two-day, 120-mile endurance race through Death Valley, the tracking system preformed flawlessly. Proof that the PK-12 isn't just for beginners, it's for all who want a true performer.

AEA's APRS Adapter Cable



PK-12 & GPS receiver using the Adapter to connect to a single computer COM port

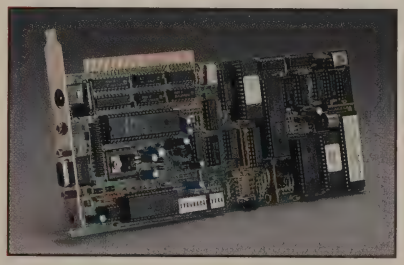
No room for more equipment? No problem!

PCB-88

HF/VHF Packet Controller Computer Board

Specifications for the PCB-88

Modem input range	5 to 770 mV RMS
Demodulator	AMD 7910 World Chip
Modulator	Phase-continuous sinewave, AFSK generator
Modulator output level	5 to 300 mV RMS
Processor system	Zilog Z-80
RAM	Battery-backed, 32K
ROM	32K
Hardware HDLC	Zilog 8530 SCC
Input/Output Connections	
Radio interface	DB-9
Modem connection	TAPR Modem Disconnect Header
Terminal data rates	Single character auto-baud detection at 300, 600, 1200, 2400, 4800, 9600, & 19.2



Just Plug It In and Go

The PCB-88 is a full-featured, 1200 bps, IBM compatible, HF/VHF packet controller. Plug it into any 8 or 16-bit expansion slot in your XT, AT or compatible PC.

It comes with standard AEA TNC features, plus—true DCD, modem disconnect header for easy hook-up of other modems, AEA's extensive Host mode, KISS command, 18K Mailbox, full MailDrop facilities, node features, and selective connecting and digipeating. PC PakRatt-88 control software is included. The PCB-88 can get DC power direct from the computer's bus lines or, the included (U.S. models only) AC-1 12 VDC adapter can be used, so the PCB-88's MailDrop can receive messages even when the computer is turned off.

PC PakRatt for Windows Version 2.0

TNC Control Program

NEW Version

Features

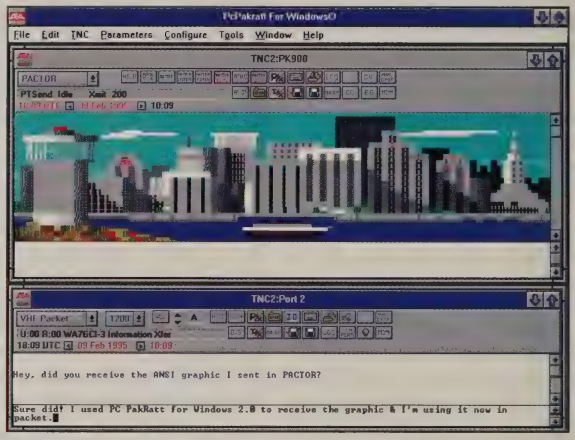
- Controls the whole family of AEA data controllers
- Runs under Microsoft Windows™
- Runs under Windows '95™, Windows 3.1, and Windows N/T
- Operate up to four radio ports
- Log Windows 3.0 compatibility
- ANSI graphics in PACTOR
- Controls all features of AEA TNCs
- Runs minimized or in background
- Has complete macro key facility
- Built-in QSO logging program
- On-screen help menu
- Separate windows for MailDrop operation and QSO logging
- Separate parameter screens for all the modes

PC PakRatt for Windows 2.0

Advanced Electronic Applications, Inc.
P. O. Box C2160 • Lynnwood, WA 98036
Phone: (206) 774-5554 • Fax: (206) 775-2340

Windows of Opportunity

AEA understands that dependable control software is just as important as powerful data controllers. Software can make all the difference in whether you find your hobby a pleasure or a tedious chore. PC PakRatt for Windows 2.0 makes digital radio easy and powerful. First, it runs under the easy-to-use Microsoft Windows™ format, even under the new Windows '95. Second, this software was written by AEA for AEA data controllers—no one else's software comes close.



PC PakRatt for Windows 2.0 operating environment

Controls All AEA TNCs

PC PakRatt for Windows 2.0 controls the whole line of AEA data controllers. Using Windows' multi-tasking abilities, you can have dual-, tri-, or even quad-port operation with two full-featured AEA data controllers. Imagine working an AMTOR DX station through your new DSP-232, receiving information from a local packet net on your PK-900's port 2, and working PACTOR on port 1 of the PK-900—all at the same time!

Makes Life Easier

Whatever your TNC can do, PC PakRatt for Windows 2.0 makes it easier. Run HF or VHF packet (9600 bps or 1200 bps). Work PACTOR, AMTOR, RTTY (Baudot/ASCII), Morse, Signal Analysis, NAVTEX, or Dumb terminal modes.

Parameters for each TNC

There are many user-definable parameter menus for each mode and TNC which can be set up quickly and called upon when needed. All the commands you can never remember are visually displayed in the various menus and windows. Plus, help is available at any time. Because of the versatile parameter menus, beginners can learn more about the commands they are using for the first time. Advanced users will realize increased efficiency and easier control of two TNCs. PC PakRatt is a must for anyone who wants to unleash the full power of their AEA TNC.

Log Windows Compatibility

That's right—PC PakRatt for Windows 2.0 is fully compatible with Log Windows 3.0. This means you can have the powerful TNC control of PC PakRatt, coupled with the great database, logging, and tracking features of Log Windows.

ANSI Graphics

Sending and receiving ANSI graphics in PACTOR is now possible. Send and receive pictures like the city shown above.

Mailbox Features

Check your packet, PACTOR, and AMTOR messages using PC PakRatt's MailDrop interface. The easy-to-use MailDrop interface makes reading, writing, editing, and filing messages simple.

More Features

Separate windows for QSO logging, file transfers, Help, and much more. Full access to other programs and Windows utilities. Information in the transmit window can be saved to the Windows clipboard for cutting and pasting elsewhere.

Requirements

386 PC or better, Windows 3.1 or better, 4MB free hard disk space, and 2 MB RAM (4 MB recommended), and an AEA data controller with August 1991 firmware or better.

Advanced Electronic Applications, Inc.
P. O. Box C2160 • Lynnwood, WA 98036
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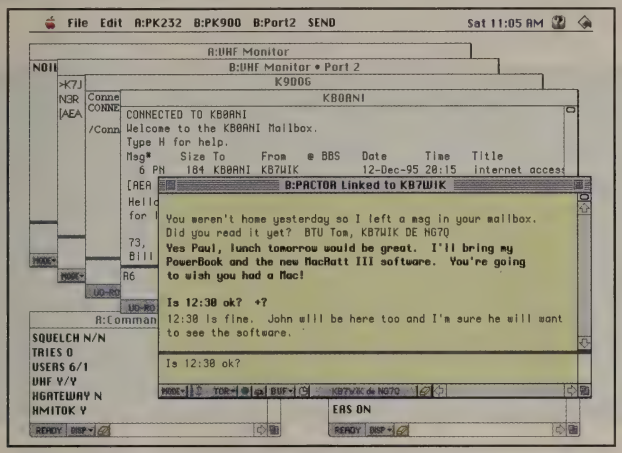
The Power of Ratt in a Mac

This is our newest data controller program—MacRatt III. We've improved upon our original design to take advantage of the power of the newest Macintosh systems. If you have an AEA data controller and a Macintosh computer, this is the control program for you. MacRatt III is the easiest and most powerful data controller program written for Macintosh computers—you will be impressed.



MacRatt III, the new terminal control program for all AEA data controllers

Controls All AEA TNCs

All AEA data controllers with 1991 firmware or better can be controlled with MacRatt III. This includes the PK-12, PK-96, PK-232MBX, the new DSP-232, PK-900, DSP-1232, and the DSP-2232. You can even control two AEA data controllers simultaneously. With two dual port data controllers, such as the PK-900 and DSP-2232, you can have quad-port radio operation!

MailBox

Handling your packet, AMTOR, and/or PACTOR mail has never been easier—you can easily save messages to disk just by clicking and dragging.

You're in Command

Accessing and changing commands is simple. Each mode has its own pull-down menu which offers access to a plethora of commands that can be set for that specific mode. Modes supported: HF/VHF/UHF packet, PACTOR, AMTOR, RTTY (Baudot/ASCII), and NAVTEX.

Other Features

Other features you are sure to appreciate are the pull-down help menus that not only helps you with the software program, but how to run the data controllers. You will have access to other Macintosh programs and be able to transfer binary file.

MacRatt III

Terminal control program for newer Macintosh computers

NEW Version

Features

- ***Controls the whole family of AEA data controllers***
- ***Runs under System 6.05-7.0-7.5***
- ***Controls all features of AEA TNCs***
- ***Full Mailbox facilities***
- ***Extensive help files***
- ***Allows for controlling two AEA data controllers at once***
- ***Runs minimized or in the background***
- ***Limited one year warranty***

Requirements: Macintosh computer with System 6.05 or newer, 4 MB disk space, 4 MB RAM, an AEA data controller with August 1991 firmware or better.

Pakratt Software Selection Table ● = Yes ○ = No

	PC PAKRATT for Windows 2.0	PC PAKRATT II	PCPakRatt Lite	COM PAKRATT	MacRATT III
Which controllers	All*	PK-12, 96, 232MBX , PK/PCB-88	PK-96/12	PK-88, 12, 96/232MBX	All*
Computer type	PC Compatible	PC Compatible	PC Compatible	Commodore C-64	Macintosh
PACTOR	●**	●**	○	○	●
AMTOR	●	●	○	●	●
RTTY (ASCII/Baudot)	●	●	○	●	●
Packet	●	●	●	●	●
QSO Logging	●	●	○	○	○
Controls multiple TNCs at once	●	○	○	○	●
Fax	○	●***	○	●	○
Binary file transfer	●	●	●	○	●
Disk & printer access	●	●	●	●	●
Help	●	●	●	○	●

* "All" denotes PK-12, PK-96, PK-88, PCB-88, PK-232MBX, DSP-232, PK-900, DSP-1232, and DSP-2232.
** Requires AEA multi-mode controller with PACTOR.
*** Includes DOS-based PK-FAX, B&W fax receive & transmit program. Works with multi-mode controllers only.

AEA ACARS

See airline flight information right on your computer screen!

Advanced Electronic Applications, Inc.
P. O. Box C2160 • Lynnwood, WA 98036
Phone: (206) 774-5554 • Fax: (206) 775-2340

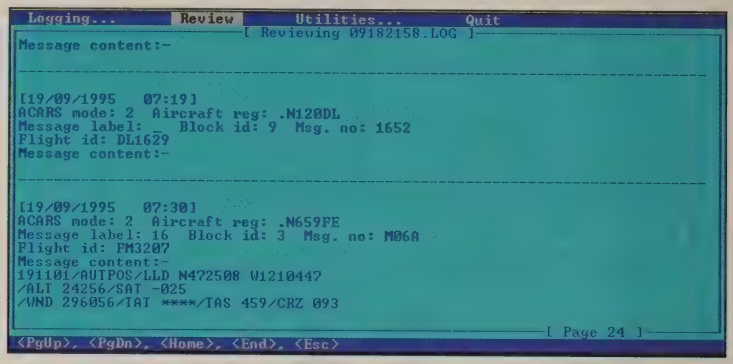
NEW

Air Traffic Controller

Airline flight, cargo, fuel, and many other pieces of information will fly across your screen. AEA ACARS is a package containing a small demodulator and DOS computer software that lets you receive the digital communications taking place between ground stations and aircraft. All you need is the AEA ACARS package, a VHF receiver or scanner capable of covering 129-132 MHz AM, and a 386 or better IBM-compatible computer.

Features

- *Lets you see digital airline communication on your computer*
- *DOS software and demodulator included in full ACARS package*
- *Same demodulator as AEA FAX III — FAX III owners can buy the software only version of ACARS at a reduced price!*
- *DSP-232 and PK-900 owners have the demodulator built into their TNCs — all you need is the special software-only version, AEA ACARS 900 for your DSP-232 or PK-900*
- *Use with your existing VHF receiver or scanner*
- *Use with your existing IBM-compatible computer*
- *Detailed manual gets you receiving messages in no time*
- *Software supports computer COM ports 1-4*
- *Limited One Year Warranty*



This is the sort of information you will see with AEA ACARS

What is ACARS?

ACARS is an acronym for Aircraft Communications Addressing and Reporting System. Until a decade ago, almost all radio links between the ground and commercial aircraft used voice communications.The expansion in air traffic generated the need for a faster and more efficient system for handling communications. The result was ACARS, a digital data link system designed to utilize existing ground station and aircraft radio equipment, and enhance air-ground-air communications. AEA ACARS gives you the ability to monitor this communication.

The Messages

The ACARS frequencies carry a lot of traffic between aircraft and ground stations. The types of information in the ACARS transmissions varies widely. It can range from simple arrival/departure reports, to lengthy aircraft computer downlinks of navigation, engine, and performance data. Messages also include: Weather observations, flight plans, navigation positions, aircraft and engine performance data, arrival/departure/delay reports, equipment malfunction reports, and crew reports.

The Range

As aircraft fly, they continuously transmit information and AEA ACARS gives you the ability to monitor this air-to-ground communication. If you are near a major airport, you can even monitor both air-to-ground and ground-to-air communications.

ACARS Signals

For ham radio operators and short-wave listeners, ACARS can be regarded as a commercial type of packet radio communication. The ACARS signal uses a 2400 bps message data bit stream to differentially AM modulate the transmitter carrier using 1200 and 2400 Hz tones. AM modulation is used, consistent with the historical use of AM voice mode on the aircraft bands since the early days of radio.

AEA FAX III Owners

The great thing about the way we designed AEA ACARS is that the demodulator for AEA ACARS and AEA FAX III are identical. If you already own AEA FAX III and you want AEA ACARS, all you need to do is get the software only version of ACARS at a reduced cost—just load the software on your computer and use your existing AEA FAX III demodulator!

If you don't have AEA FAX III, get the complete AEA ACARS package which includes both the demodulator and the software. If you decide you want to receive weather fax images—by the software only version of AEA FAX III.

DSP-232 & PK-900 Owners

If you own either the new AEA DSP-232 or PK-900, you have the demodulator hardware already built into your data controllers. If you want to receive ACARS transmissions, get AEA ACARS 900—the software only version custom-designed to run with your DSP-232 or PK-900. If you want AEA FAX III—same deal, get AEA FAX III 900.

Simply plug-in this demodulator, load the software, and you are ready to receive ACARS messages.

Advanced Electronic Applications, Inc.
P. O. Box C2160 • Lynnwood, WA 98036
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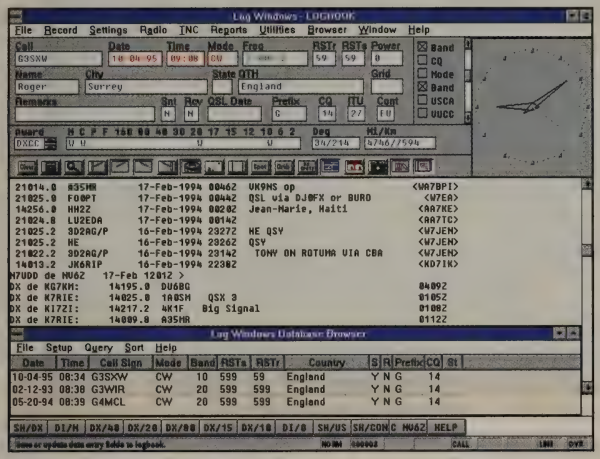
The Paperless Logbook

Logging, rig control, and DX cluster monitoring with award tracking and reporting, it's all here and much more. This program was created to automatically display DX spots and allow users to move to the designated frequency quickly, log the contact, then save the information in a log. Immediately enter contacts and update your progress toward awards with AEA's new Log Windows 3.0. Compatible with Windows '95™ as well as Windows 3.1™, and Windows N/T.



Log Windows 3.0 operating environment

PakRatt Compatibility

This new version of Log Windows is now compatible with AEA's PC PakRatt for Windows version 2.0. Users can have the superior TNC control of PC PakRatt for Windows 2.0, coupled with the powerful logging and tracking of Log Windows.

Rotor Control

Antennas can be turned to the short path, long path, or in an arbitrary direction, with the click of a mouse.

Database Browser

A new Database Browser lets you sort and print logs by any criteria. Users can also query on-line callbook databases such as AmSoft, Flying Horse, SAM, QRZ, or HAMCall for a callsign at any time. You can also use the internal QSL manager or an external one, such W6GO/K6HHD GOLIST.

DX Spots

Log Windows 3.0 can verbalize DX spots with a voice-synthesized DX alarm. A filter can be turned on so Log Windows will only display and sound alarms for DX that are needed, preventing unwanted spots from distracting you. You can display the 30 most recent DX spots, choose one to enter in the display, and grab it. This automatically sets the transceiver frequency and mode, and prepares the logbook to record the contact. Log Windows 3.0 doesn't even require an AEA TNC.

Move to Log Windows

The stand-alone LW Import program (included) allows all these logs to be imported into Log Windows 3.0: CT, DXLog, Log Master, Easy DX, Hyperlog, DX Base, N6RJ 2nd Op, Log View, DX Desktop, PC PakRatt, and any ASCII log.

Award Types Supported

Logging and award tracking are supported for: ARRL DXCC, WAS, VUCC, and *CQ Magazine's* CQ Zone and US-CA awards.

Report Types

With Log Windows 3.0 you can generate all these reports: Summary, Full report, Countries/states/zones worked, Countries/states/zones needed, QSLs sent, QSLs needed, Award tag types (not tagged/duplicates).

Other Features

Other new features include: a full time status bar, data entry fields can be passed to a TNC via User Buttons, you can enter operator notes for each contact, control your radio's basic functions, laser or tractor fed label printing, browser can replace to TNC window if you are not a TNC user, plus much more!

Requirements

An IBM compatible computer running Windows 3.1 or better, 4MB of RAM, and 4MB of free hard disk space.

Log Windows
Version 3.0
Logging & Award Tracking Program

NEW Version

Features

- ***Logging, rig control, antenna rotor control, and data controller interface all in one package!***
- ***Runs under Microsoft Windows™***
- ***PC PakRatt for Windows 2.0 compatibility for ultimate control***
- ***Query on-line callbook databases***
- ***Imports most other databases***
- ***Use the Database Browser to search your logs by almost any criteria you can imagine***
- ***Voice synthesized DX spot alert***
- ***Packet Cluster Interface supports all AEA TNCs, plus all others too!***
- ***Print logbooks by prefix or chronological order***
- ***Print QSO labels (laser/tractor)***
- ***Generates many report types***
- ***Supports all popular awards***
- ***On-screen help***
- ***Limited one year warranty***

Log Windows 3.0

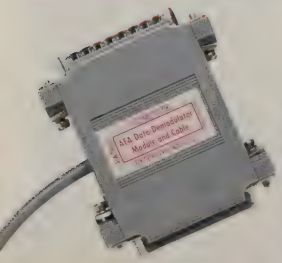
AEA FAX III

WeFax CW, RTTY, & NAVTEX Reception

NEW Version

Features

- ✪ *256 WeFax coloring ability*
- ✪ *Receives WeFax in 16 shades of gray*
- ✪ *Receives WeFax, NAVTEX, RTTY, and Morse code*
- ✪ *Includes a Fax Station Database*
- ✪ *Can be configured to automatically receive images while you are away*
- ✪ *On-screen tuning indicator helps you keep the signal coming in strong*
- ✪ *Slide Show mode for viewing a series of your favorite images*
- ✪ *Images can be exported to .GIF or .PCX files*
- ✪ *Manipulate images after they are received*
- ✪ *Demodulator is the same as the one used for AEA ACARS; software only AEA ACARS available*
- ✪ *Prints images on popular printers; color on HP & Epson color printers*
- ✪ *Limited One Year Warranty*



Simply plug-in this demodulator, load the software, and you are ready to receive highly detailed WeFax images.

Advanced Electronic Applications, Inc.
P. O. Box C2160 • Lynnwood, WA 98036
Phone: (206) 774-5554 • Fax: (206) 775-2340

Why Wait for the Weather?

AEA FAX III is a package containing a small demodulator and DOS computer software that lets you receive gray scale HF weather fax images. It also decodes CW, RTTY, and NAVTEX messages. All you need is a SSB receiver and an IBM-compatible computer. Once you buy FAX III, you can order the software-only version of ACARS—the demodulator is the same.

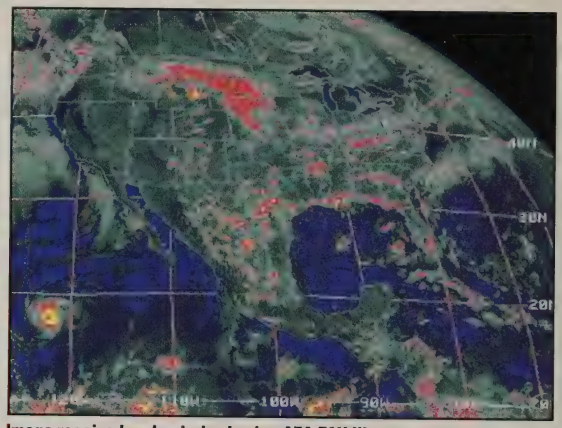


Image received and colorized using AEA FAX III

Colorize Your Weather

Receive WeFax images in 16 shades of gray, then colorize with the 256 color palette. Colorizing allows you to decipher more information from received images. You can then export the grayscale or color images to .PCX or .GIF graphic file extension for use in other programs.

Fax Station Database

A Fax Station Database is included with AEA FAX III. You can keep a log of stations heard and update the database whenever you want. Once a station is in the database, you can quickly and easily search the entire database by names, country, or time.

Automatic Reception

AEA FAX III enables a computer to drive computer controllable receivers, allowing frequency switching of the receiver for unattended capture of complex schedules. This feature coupled with the fax station database makes unattended captures a snap. Just choose stations from the database, put them in a schedule, and go do something else. When you come back, AEA FAX III will have captured the transmissions you need.

Upgrades Available

If you have AEA FAX or AEA FAX II, you can fully upgrade to AEA FAX III. Here's a bonus, the demodulator used for ACARS and AEA FAX III are the same. So, once you buy AEA FAX III, you can just just order the software only version of ACARS.

On-Screen Tuning Indicator

A tuning indicator is present at all times while receiving an image. You can adjust the tuning of the signal and immediately see the results. You don't have to stop receiving an image to adjust tuning as with other WeFax receiving programs.

Manipulate Images

Once an image is received you can manipulate it right in AEA FAX III. You can zoom, invert, flip, rotate, mirror, scroll, and crop images. Plus you can colorize images and export them as graphic files!

Easy Installation

The demodulator simply plugs into the serial port on your computer—no TNC is required. The circuitry for demodulation is housed in the included demodulator. A shielded audio cable plugs into a COM port on your computer and into your HF receiver's external speaker output. The connector has a female DB-25 connector on one side to interface with your computer's COM 1-4 port. On the other side is a male DB-25 connector so you can "daisy-chain" and avoid tying up a COM port.

Requirements

Requires an IBM-compatible computer and a general coverage HF SSB receiver. VGA monitor required for optimum gray scale and colorized fax display. Works with EGA and CGA monitors, but with reduced grays and colors displayed. No Amateur Radio License is needed. No TNC is needed.

Advanced Electronic Applications, Inc.
P. O. Box C2160 • Lynnwood, WA 98036
Phone: (206) 774-5554 • Fax: (206) 775-2340

Getting You All Keyed Up!

The KK-1 turns any standard PC compatible 101-key keyboard into an easy-to-use, feature packed Morse machine. No computer is required; the keyer works with the computer keyboard alone. If you have a keyboard connected to your PC, the KK-1 will share it with your computer (cable provided). One keystroke switches the keyboard between the keyer and your computer.

Total Control

The KK-1's features take full advantage of your keyboard's layout. For example, the separate numeric and cursor-control keypads are used for accessing the majority of functions and for parameter selection. The twelve function keys select the message buffers with a single keystroke.

Controls and Display

The speed knob lets you control speed from the keyer. You can also make changes by using the keyboard. Mode indicators include: Pause, Load, Send, Tune, On-Line, plus others. There are also four, 7-segment LEDs in the parameter display for checking all settings at a glance.

Great Features

There are twelve memories which allow you to store six times as many messages as other keyers. The dynamically allocated, battery-backed memory holds over 9,700 characters—48 times more than other keyers. There is a separate short-term memory which lets you repeat your last exchange with a single keystroke, if QRM wiped you out. The paddle reverse function allows easy switch-over for left-handers. Send Farnsworth code on the air—set the average speed slower than character formation speed for more relaxed QSOs. The KK-1 defeats the keyboard's auto-repeat feature to prevent CCCCQQQQ and the like. And the 19 weight settings compensate for transmitter keying characteristics and give you a distinctive 'fist.'

KKCOM software

KKCOM is an optional software program and serial interface cable which connect the KK-1 to a PC.

While other Keyers don't let you see what you're typing, KKCOM lets you create and edit buffer contents right on the computer screen. Keyer parameters like speed, sidetone pitch, serial number, and paddle sense can also be displayed and changed. You can even save to disk, and reload later, the entire contents of the KK-1, including messages and settings.

Customize the KK-1's battery-backed message buffers! Have different buffer banks for field day, contesting, or for everyday use. Create and save up to twelve buffers. Message buffers will stay there until you decide to change them again.

KK-1

The keyboard keyer that puts the world at your fingertips

Remote Base Station Control

No longer are you tied to your shack when you want the power of a base station. Control your ICOM, Kenwood, or Yaesu radio using your telephone, handheld, or mobile radio. Using your radio's computer port, you can operate SSB, FM, AM, and even CW anywhere you go.

HamLink & RadioLink

Both units allow you to change bands, frequency, and modes. Just in case you lose track of your frequency or mode, we've included a voice synthesizer to remind you. There is also password protection, so others won't have access to your equipment.

The HamLink Model

HamLink controls your ham station using a touch tone telephone. Change bands and frequency, tune up or down, switch modes (AM/SSB/FM/CW), scan, run split VFO, or virtually any other radio feature from anywhere you can find a touch-tone phone.

HamLink hooks into your existing telephone line so there is no need for a second phone line to be installed. HamLink functions perfectly, even if you have an answering machine connected to the same phone line.

The RadioLink Model

Similar to HamLink, RadioLink lets you use the touch-tone keypad on your handheld or mobile radio to change bands, frequency, or mode. RadioLink can go between your HF/VHF/UHF transceiver and a repeater or a 220 MHz or UHF full duplex link.

RadioLink also interfaces with equipment that does not have a computer port for commercial use. In addition, RadioLink switches to a local mode so the user does not have to plug and unplug a local mic, key, and speaker.

HamLink RadioLink

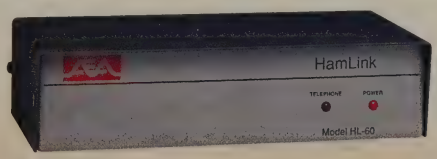
Base station power from your handheld

Accessory Outputs

HamLink and RadioLink both have accessory outputs for controlling external relays (actual relays are not provided). The accessory outputs can be used for controlling your antennas, turning on/off lights, coffee pots, and anything else you can imagine.

OpLink

This optional CW adapter connects to your remote telephone or radio. You then plug in your favorite key or keyer and start transmitting high speed CW.



DM-1

AEA's new VHF/UHF Deviation Meter for voice, data, + more

Specifications for the DM-1

Frequencies	147.9, 222.1, 444.1 MHz
Deviation ranges	± 1 kHz, ± 5 kHz full scale
Readout	10 segment LED bar and provisions for an external meter
Deviation resolution	50 Hz on 1 kHz range; 250 Hz on 5 kHz range (greater with external meter)
Accuracy	± 5% of full scale
Audio freq response	± 2 dB from 10 Hz to 300 Hz (1 kHz range) ± 3 dB from 10 Hz to 5000 Hz (5 kHz range)
Sensitivity (WHIP input)	< 100 mV
Operating power (through)	1 Watt - 100 Watts
SWR	<1.3 : 1
Audio de-emphasis	750 µs
Battery	Standard 9 Volt alkaline
Battery current	60 mA typical
Physical	
Dimensions	6.13" W x 4.75" D x 1.38" H
Weight	1 lb

Also Available:

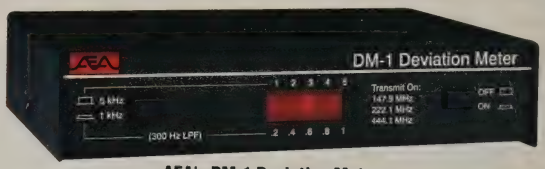
DM-1 EU Same features and functions, but for the European frequencies: 145.1, 217.6, & 435.1 MHz

Advanced Electronic Applications, Inc.
P. O. Box C2160 • Lynnwood, WA 98036
Phone: (206) 774-5554 • Fax: (206) 775-2340

NEW

Check Your Deviation

A deviation meter is an essential tool for operating at 9600 bps. AEA's new DM-1 is a deviation meter designed for measuring the deviation of FM transmitters operating in the 144, 220, or 440 MHz amateur bands. Great for measuring voice, data, DTMF, and sub-audible deviation.



AEA's DM-1 Deviation Meter

Optimum Digital Throughput

For maximum throughput, it's important that your transmitter's deviation be correctly set. If the deviation is set too low, other stations will not hear your signal; if set too high, your over-deviated signals will interfere with amateurs operating on nearby frequencies.

9600 bps Packet

The DM-1 allows you to correctly set the deviation for 9600 bps Packet operation, which is nearly impossible to do by ear. Packet users that are used to the 'braaap' sound of the 1200 bps packet bursts will only hear 'white' noise when using 9600 bps. The DM-1 allows users to correctly set deviation—eliminating excessive retries, increasing data throughput, and increasing channel efficiency.

CTCSS Tone Checking

The DM-1 can also measure the CTCSS tones. The 1kHz. range of the meter is for this purpose.

Feature Packed

The DM-1's tuning is crystal controlled, which provides stable measurement and eliminates the need for manual tuning. Two deviation ranges allow sufficient resolution for accurate measurement of voice, data, DTMF, and sub-audible deviation. Handhelds, mobiles, and base stations can be checked for correct deviation.

Display and Outputs

The DM-1 comes with a ten segment LED bar display and includes an output for external digital or analog meters, which provide increased resolution. Also included is a low-level, de-emphasized audio output for monitoring audio quality through an external amplifier.

Battery Powered

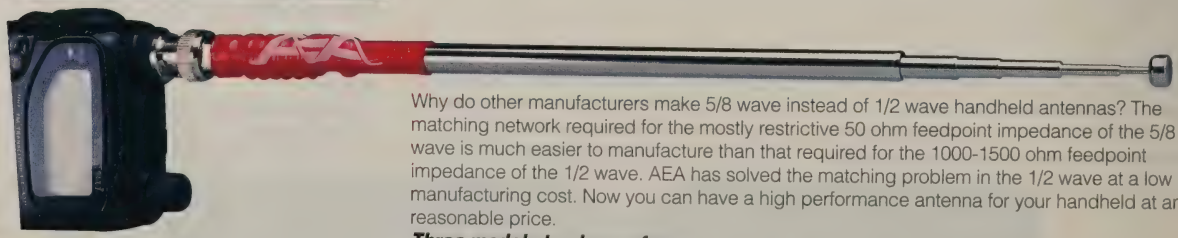
Power is supplied by one standard 9 volt alkaline battery (not included). When battery voltage drops below 5.5 volts, the DM-1 is automatically disabled to prevent erroneous readings.

Hot Rods

High Performance for your Handheld

Outperforms 5/8 Antennas

AEA's Hot Rod antennas are end-fed halfwave dipoles which are shorter, lighter, and easier on a handheld radio than a 5/8 wave. They give typically 10 dB more gain than the popular "rubber duck" helical quarter wave antennas. They can also handle over 25 watts of power, making them ideal portable base or mobile antennas. Hot Rod antennas may be used collapsed where they perform electrically like helical quarter-wave flexible antennas, with performance roughly equivalent to the "rubber duck."



Why do other manufacturers make 5/8 wave instead of 1/2 wave handheld antennas? The matching network required for the mostly restrictive 50 ohm feedpoint impedance of the 5/8 wave is much easier to manufacture than that required for the 1000-1500 ohm feedpoint impedance of the 1/2 wave. AEA has solved the matching problem in the 1/2 wave at a low manufacturing cost. Now you can have a high performance antenna for your handheld at an reasonable price.

Three models to choose from:

HR-1 half-wave 2M ***HR-2 half-wave 220 MHz***
HR-3 half-wave 150 MHz

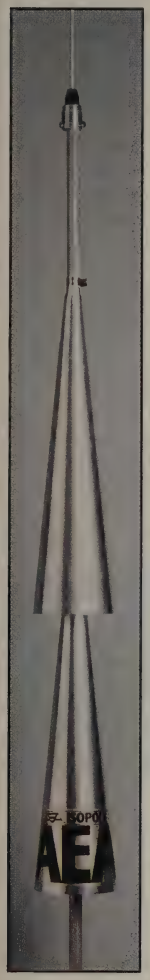
Advanced Electronic Applications, Inc.
P. O. Box C2160 • Lynnwood, WA 98036
Phone: (206) 774-5554 • Fax: (206) 775-2340

Maximum Gain Antennas

IsoPole™

High Performance for VHF/UHF Base Stations

Over 70,000 AEA IsoPoles have been sold to amateur radio operators around the world. The IsoPole is available in 144, 220, or 440 MHz versions, each yielding the maximum gain attainable for their respective lengths as well as zero-degree angle of radiation. The IsoPoles have the broadest frequency coverage of any comparable VHF base station antenna. IsoPoles give you unmatched performance in the VHF/UHF bands.

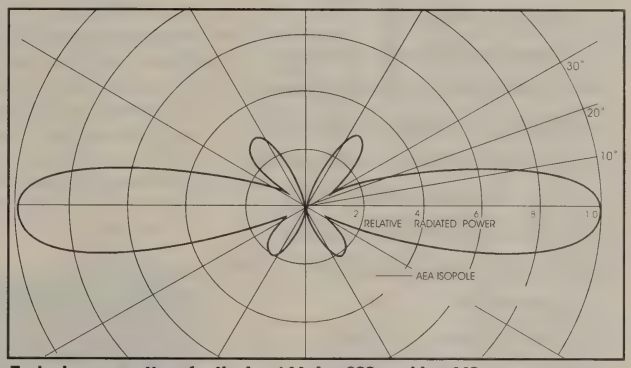


Innovative Design

The IsoPole is a gain-type omnidirectional vertical antenna with excellent decoupling, capable of accepting full legal power, impedance matched at the factory for complete coverage of respective amateur bands, with input coaxial connectors and matching section protected from the weather, all at an attractively low price. The mechanical advantages, combined with certain electrical properties of non-cylindrical sleeves, have led AEA to seek patent protection for this design.

Superior Decoupling

The IsoPole is designed so that the mounting structure and coax will not become inadvertent parts of the antenna. This is called decoupling and many antennas on the market today fail to decouple, thus ruining the radiation pattern of those antennas and making them as ineffective as a dummy load. The IsoPole's superior decoupling results in simple tuning and a significant reduction in TVI potential. There is less feedline pick up of noise with the IsoPole than any equivalent antenna.



Typical power pattern for the Iso-144, Iso-220, and Iso-440.

Greater Efficiency

Cones offer greater efficiency over radials which radiate in the horizontal plane. Additionally, the IsoPole offers broad frequency coverage. There is no loss of power output from one end of the band to the other. Typical SWR of 1.4:1 or better across the entire band. VHF versions include a 50 ohm SO-239 connector recessed within the base sleeve for full weather protection.

Maximum Power

The impedance matching network is designed for maximum legal power. It compensates for the impedance introduced by the SO-239 connector used in VHF models.

Withstands Harsh Conditions

The insulating material offers excellent strength and dielectric properties, plus long-term ultraviolet resistance. The mounting hardware is stainless steel and the decoupling cone and radiating elements are made of corrosion-resistant aluminum alloys.

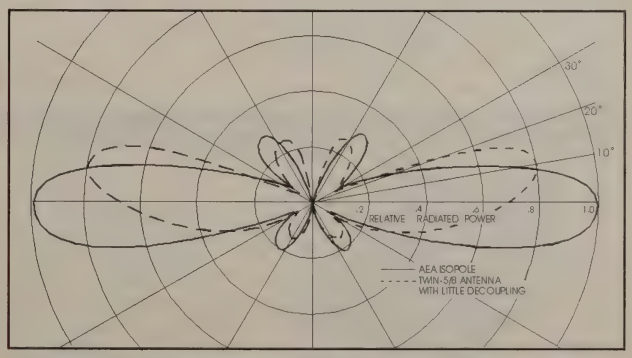
Simple Installation

The IsoPole antennas are all impedance matched in the factory so no field tuning is required. Instead of the typical 25-40 screws, the IsoPole has no more than 5 stainless steel screws to fasten, thereby significantly decreasing the time necessary for assembly and reducing the chance for errors.

Specifications for the IsoPole

Model*:	Iso-144	Iso-220	Iso-440
Frequency coverage	135-160 MHz	210-230 MHz	415-465 MHz
Impedance	50 ohms	50 ohms	50 ohms
Nominal power rating	1.0 KW	1.0 KW	1.0 KW
2.1 VSWR bandwidth	10 MHz @ 146 MHz	15 MHz @ 220 MHz	22 MHz @ 435 MHz
Length	125.5" (3.2m)	79.25" (2m)	46" (1.2m)
Min. mast length**	8' (2.4m)	5.25' (1.6m)	6' (50mm)
Coax connector	SO-239	SO-239	Type N
Gain (on horizon)	3 dBd	3 dBd	3 dBd

*Aircraft band and commercial versions also available **Mast not included.



Typical power pattern for the Iso-144, Iso-220, and Iso-440 compared to a twin 5/8 antenna with little decoupling.

DSP-232

Dual Switchable Port DSP Multi-Mode Data Controller

Advanced Electronic Applications, Inc.
P. O. Box C2160 • Lynnwood, WA 98036
Phone: (206) 774-5554 • Fax: (206) 775-2340

FREE PC PakRatt for Windows
Works with Windows 3.1 & 95
HD 3.5" disks & manual supplied
$129.00 Value!

The Mode Warrior

The plug and play DSP-232 is AEA's new state-of-the-art multi-mode data controller designed around a high-speed digital signal processor which provides the ultimate in signal filtering, modem performance, and flexibility. AEA is known for excellent filtering systems. Digital signal processing combined with hardware memory ARQ, true DCD, and hardware HDLC provides the best filtering available, and AEA has been building DSP multi-mode controllers longer than anyone (since 1991 with the DSP1232/2232). Once you see the features, the upgrade capability, and the affordability, your view of multi-mode controllers will be changed forever.

Features

- ***Fast digital signal processor***
- ***9600 & 1200 bps Packet***
- ***All standard HF & VHF modes***
- ***Mailbox expandable to 242K***
- ***Full MailDrop facility for Packet, PACTOR, and AMTOR***
- ***Two switchable radio ports with rear-panel AFSK adjustments and another adjustment for 9600 bps***
- ***GPS firmware which is compatible with GPS, Loran, ARNAV, and ULTIMETER II weather stations***
- ***GPS commands are remotely programmable***
- ***Gateway firmware which works as a node for faster throughput***
- ***SIAM™ signal identification***
- ***Hardware Memory ARQ***
- ***Identify TCP/IP, TheNet & NetRom***

Modes

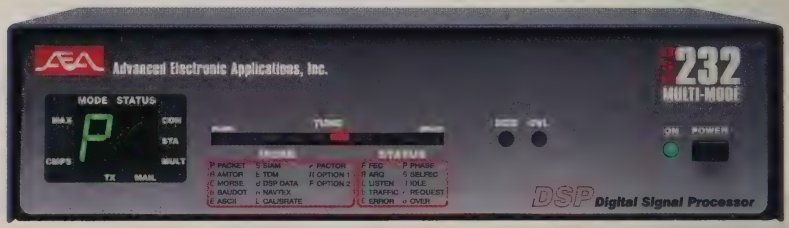
All proven modes are included. Packet VHF (9600 and 1200 bps) & HF (300 bps), PACTOR, AMTOR (ARQ & FEC), RTTY (Baudot & ASCII), and Morse. Also includes: Output Calibration, SIAM™, 19 software selectable modems, and High/Low FSK tone pairs for international use.

Upgradable

The DSP-232 was designed using the 32 bit Motorola 68340 as the host processor and the Analog Devices 2105 DSP processor. This powerful combination allows the DSP-232 to handle new digital modes, like PACTOR II. No longer are you bound to the constraints of analog modems and slow 8 bit host processors. This is your digital platform for the future.

Full MailDrop Facilities

There is 18K (32K RAM) of mailbox space standard which is expandable to a whopping 242K (256K RAM)—you will always have the message space you need. The MailDrop accepts messages in packet, PACTOR, and AMTOR. The internal battery holds the messages when the unit is turned off. The mail LED on the front panel display will alert you to new PACTOR, AMTOR, and packet mail. MailDrop also controls 3rd party traffic and receives, forwards, and reverse forwards messages. You have complete control of the MailDrop with AEA's advanced commands. CFROM and DFROM let you select who may or may not connect and leave a message. MHeard lists the 18 most recently heard stations. Leave your DSP-232 on all the time, it will continue to receive/route mail and serve as a node, like all other AEA data controllers.



AEA's DSP-232 Multi-Mode Data Controller

Specifications for the DSP-232

Modem	Analog Devices 2105 Digital Signal Processor running at 12.3 MHz in conjunction with Analog Devices 28msp02 audio CODEC
Modulator output level	5-100 mV RMS, adjustable with rear panel controls for each radio port
Processor system	Motorola 68340 running at 16.7 MHz
RAM	Battery-backed 32K standard, expandable to 256K
ROM	128K standard, expandable to 256K
Hardware HDLC	Zilog 8530 SCC
Power requirements	+12 to +16 VDC @ 1 1A
Input/Output Connections	
Radio interface	One 5-pin DIN connector. One 8-pin DIN connector
Direct FSK outputs	Normal/Reverse
Terminal interface	RS-232-C 9-pin DB-9S connector with hardware/software handshake
Terminal data rates	Autobaud settings at 300, 600, 1200, 2400, 4800, 9600, and 19,200 bps
RX Audio	Port 1 and Port 2
TX Level	Port 1, Port 2, and 9600 bps
Other	Station ground connector and external reset button
Physical	
Dimensions	9.35" (237mm)W x 7.90" (201mm)D x 2.30" (58mm)H
Weight	3 lbs (1.36 kg)

Gateway as a Node

The Gateway firmware lets you "node-hop" to reach distant stations instead of digipeating; thereby reducing channel traffic and increasing data throughput. As with MailDrop, you have control of who uses your Gateway. Gateway also allows identification of TheNet, TCP/IP, and NETROM. There are two heard lists included with Gateway: one for stations heard and one for nodes.

Signal Identification (SIAM™)

AEA developed Signal Identification & Acquisition Mode to automatically detect incoming Baudot, ASCII, AMTOR/SITOR, and PACTOR signals, and with a few keystrokes switch to the recognized mode and start displaying data.

WeFax Reception

The DSP-232 includes a Zero-Crossing Detector for gray scale terrestrial fax reception with the optional AEA FAX III 900 WeFax receiving program. This program allows you to receive WeFax images, colorize them with 256 color, then export them to .PCX or .GIF files for use in other applications. Also compatible with AEA's WeFax 256 for Windows.

Designed Right

The high-Q design results in a narrow bandwidth which suppresses harmonics from your transmitter, reducing TVI problems. It also attenuates out-of-band signals, helping prevent receiver overload.

Built Right

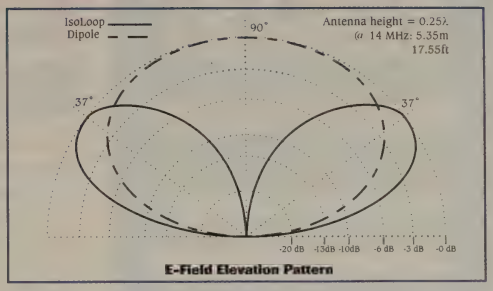
All-welded construction means no mechanical joints, so the possibility of corrosion is kept to a minimum. We also used all stainless steel construction throughout for even better corrosion protection. The plastic housing is injection molded which reduces swelling and warping in extreme conditions. The IsoLoop is isolated from the feedline, resulting in an undistorted radiation pattern and less stray RF in the ham shack.

WARNING:
Don't be fooled by cheap imitations. The theory behind loop antennas is proven, however, cut-rate versions of loop antennas provide poor performance and don't withstand the elements of time. AEA designed the IsoLoop with quality parts, materials, and craftsmanship to provide you with years of high performance communication.

At 17.55 Feet. . .

At low elevations, the IsoLoop clearly outperforms the half-wave dipole at the same height. While the dipole's maximum radiation is at 90 degrees, the IsoLoop radiates at low angles, perfect for DX. And at this height (17.55 feet), there's no need for a tower.

The IsoLoop is omnidirectional, so you can get out in all directions, and covers 10-30 MHz continuously.

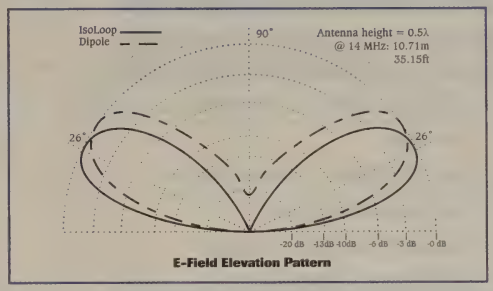


E-Field Elevation Pattern

At 35.15 Feet. . .

Even at greater heights, the IsoLoop still compares favorably with the much bigger half-wave dipole. Notice that the IsoLoop's radiation angle is still lower than the dipole's. Plus, the simple construction of the IsoLoop makes it easier to install and much easier to maintain.

With your coax and mast, the IsoLoop installs in seconds. In addition, the IsoLoop needs no ground plane, ground radials, rotors, or antenna tuners.

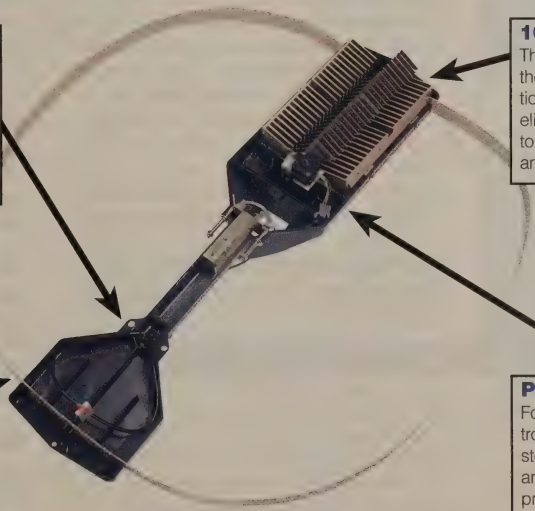


E-Field Elevation Pattern

There is nothing mysterious or magical about the IsoLoop 10-30 HF Antenna. Small loop antennas have been around since Heinrich Hertz's first experiments with radio in 1886. What's revolutionary is that someone has finally put all the pieces together in one efficient package. Lack of efficiency is the major reason why the radio world has never seen a successful small loop antenna for the HF bands. The efficiency of the IsoLoop on 20m is 72%, rising to 96% on 10m. For comparison, a typical 20m mobile antenna has efficiencies ranging from 2% to 10%.

Lossless Impedance Matching
The very low impedance of the radiating loop (typically 0.06 ohm) is matched to 50 ohms using the technique of mutually coupled air core inductors. This technique is essentially lossless and the shielded primary coupling loop also provides a balun action to isolate the main loop from the feedline.

10,000 Volt Variable Capacitor
This heavy duty, custom designed capacitor is the heart of the tunable IsoLoop. All connections are welded and the split stator design eliminates lossy sliding connections. The key to maintaining radiation efficiency in small antennas is to minimize all possible losses.



Main Loop
This 35" diameter band of iridited aluminum is welded to the tuning capacitor to further reduce losses. Electrically, the main loop is an inductor that radiates because of its large diameter. This radiating inductor is tuned with the capacitor to form a very high Q resonant circuit. The high Q has the added benefit of suppressing both transmitted and received off-frequency signals.

Precision Stepper Motor
Four control lines from the LC-2 Loop controller determine which way, and how fast the stepper motor rotates. With its high resolution and a 30:1 gear reduction, this system provides incredible tuning precision, and unlike a DC motor, generates no RF noise.

IsoLoop 10-30 with cover open.

IT-1 IsoTuner

With the IT-1 IsoTuner, tuning the IsoLoop has just become easier! This is not a station antenna tuner, it tunes the IsoLoop to resonance.

Internal beeper confirms key pad operations and announces completion of tuning or error conditions.

Memory back-up, built-in serial interface, and pop-up software are included.

A thumbwheel knob provides manual control and fine tuning with the step rate determined by the speed of knob rotation. The IT-1 tunes for maximum receive noise or minimum SWR. Add to this eight programmable memories and a 10-segment multipurpose LED bar and the IT-1 becomes an indispensable part of your IsoLoop tuning system.

AEA's IT-1 IsoTuner

SWR-121
Antenna Analysts
HF & VHF Models
Commercial Models

Advanced Electronic Applications, Inc.
P. O. Box C2160 • Lynnwood, WA 98036
Phone: (206) 774-5554 • Fax: (206) 775-2340

Get the Picture?

Tuning antennas for lowest SWR in your favorite operating range could be a lengthy process, but not with AEA's line of handheld Antenna Analysts. With the SWR-121 (SWR 1:1—get it?), enter the desired frequency and bandwidth on the keypad, connect to your antenna, and see the graphic display plot your SWR vs. frequency and measure your return loss. Make adjustments and see the result on-the-spot. AEA makes having perfect antennas easy! Two models to choose from: the SWR-121 HF which covers 1-31.999 MHz; and the SWR-121 V/U which covers 120-175, 200-225, and 400-475 MHz. Also see commercial models in back of catalog.

Features

- *Measures SWR & calculates coax line loss*
- *Graphs SWR vs. bandwidth over your selected range*
- *Displays results of antenna adjustments on-the-spot*
- *Battery powered, fully self contained, works anywhere*
- *Self referencing, Easy to use*
- *Hold function retains graphs*
- *HF Model (1-31.999MHz)*
- *VHF/UHF Model (120-175, 220-225, 440-475MHz)*
- *Commercial Models Available*
- *Optional AC adapter*
- *Optional software and cable for interfacing with PC computer; lets you save plots to disk & print them out on your printer*
- *Optional carrying pouch*

HF Antenna Analyst

VHF/UHF Antenna Analyst

The Keypad
The keypad lets you enter the frequency and bandwidth you want to measure. You can define your desired step size and step up the frequency and bandwidth, using up/down keys. You can also use the hold run button to freeze a display for detailed inspection of the plot or to bring the Analyst into your shack, hook it up to your computer, and download the plot for archival purposes.

Works With All Your Antennas
Check beams, verticals, dipoles, and mobile antennas of all types.

The Display
The unique LCD display gives you a plot of your SWR curve, the SWR measurement, and the Return Loss. You can view the SWR over the entire range, not just at one frequency. The display can even be zoomed in or out.

Use Them Anywhere
Take either the SWR-121 HF or V/U with you next time you climb the tower. From there, plug your antenna directly into the SWR-121 and get a precise display of your antenna's SWR curve, independent of the feedline. Subsequently, make tuning adjustments and immediately see the results. Can be battery-powered or run from an external power source.

Test Your Coax
Use the SWR-121 Antenna Analyst to measure the Return/Loss in dB in a length of coax. Now you can be certain it's time to replace that old feedline with fresh coax and new connectors.

Commercial Versions
AEA offers various commercial versions of the Antenna Analysts. We have the 30-137 MHz version for aircraft use. There is the 150-400 MHz version for various commercial applications. All these commercial version are menu driven via five function keys. For more information on these units, see the commercial section on page 27.

Specifications for the SWR-121 HF & SWR-121 V/U

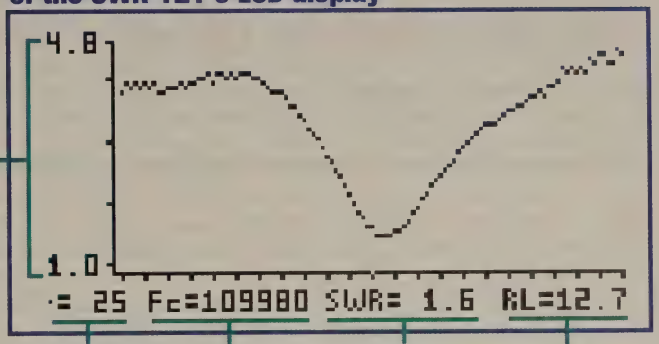
	SWR-121 HF	SWR-121 V/U
Frequency ranges	1.0-31.999 MHz	120-175, 200-225, 400-475 MHz
Characteristic impedance	50/75 ohms, selectable	50 ohms
SWR measurement range	1:1 to 65.5:1	1:1 to 65.5:1
Return loss range	0.3 dB to 50 dB	0.3 dB to 50 dB
Frequency increments	1 kHz	10 kHz
Serial port	9600 baud, XON/XOFF handshake	9600 baud, XON/XOFF handshake
Accuracy	+/- 10% typical, below 10:1	+/- 10% typical, below 10:1
Display resolution	0 to 200 kHz per dot (1 kHz increments)	0 to 990 kHz per dot (10 kHz increments)
Harmonics & spurious	>30 dB below fundamental, typical	>30 dB below fundamental, typical
Display update time	Approximately 9 seconds/sweep	Approximately 2 seconds/sweep
Power requirements (identical for both units)	Internal: Eight AA alkaline or high energy lithium batteries External: 12-16 VDC	
Physical *(identical for both units)*		
Dimensions	4.3" (109mm)W x 8.5" (216mm)D x 2.25" (57mm)H	
Weight	1 lb, 10 oz (0.74kg)	

Compare the Features

Don't fall for the cheap price, even cheaper quality, and fewer features of other manufacturers' SWR test equipment. They can't do what AEA's SWR-121 Antenna Analysts can.

AEA's SWR-121s can be connected to a computer for remote controlling and for saving plots for future reference—others can't. The SWR-121s can graphically plot the SWR curve over the entire range—others can't. The SWR-121s have a synthesized RF source so there is no need for a frequency counter—others don't. The SWR-121s have an SWR-proportional tone so you can concentrate on making adjustments—others don't. The SWR-121s have a keypad so you can enter or step-up and down width and frequencies—others don't. The list goes on.

A close-up view of the SWR-121's LCD display



The plot's scale—max. and min. SWR values

The frequency width of each dot in the plot, in kHz

The plot's Center Frequency, in kHz

The Standing Wave Ratio at the plot's center frequency

The feedline's Return Loss in dB

AACOM Control and Display Software for the IBM PC

One feature that sets AEA's SWR-121s apart from other antenna analyzers is the ability to connect with a computer for remote control and the saving of plots to your computer's hard drive. With features like remote control of your SWR-121 and computer display of SWR plots, Antenna Analyst Communications (AACOM) software makes it easy for you to get the most from your handheld antenna analyst.

AACOM Features

Once installed, AACOM gives you a host of features to enhance your SWR-121 Antenna Analyst's functionality:

- Save plots to disk and track your antenna's performance over time.
- Control any SWR-121 HF function from the computer keyboard.
- Print plots out on your computer's printer.

AACOM is menu driven, with help screens designed to make the software a pleasure to use.

You may run AACOM from your hard drive or floppy disk. COM ports 1 through 4 are supported for communications with the SWR-121 Antenna Analyst. LPT1 is supported for image printing on virtually any printer with graphics capability.

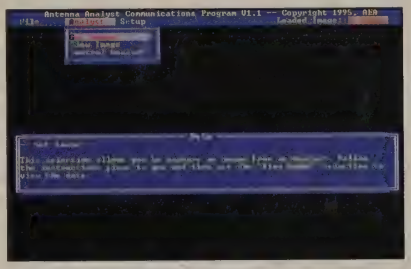
AACOM comes with a serial interface cable to connect between your computer's serial port and the SWR-121's serial connection (see picture to right). It works with DOS 3.1 or later and can be run under Windows as a non-Windows application.

With the system up and running, your computer keyboard emulates the keypad on the SWR-121. Although the SWR-121 may be several feet away, you can set its measurement parameters as though you were holding it in your hand. Beyond the remote control capability, you will like the fact that you can display SWR plots as well as print them on your printer. You can sweep your antenna system, make some adjustments and then sweep it again. By displaying and/or printing the old and new curves, you get a clear picture of the effects your adjustments have had on the system.

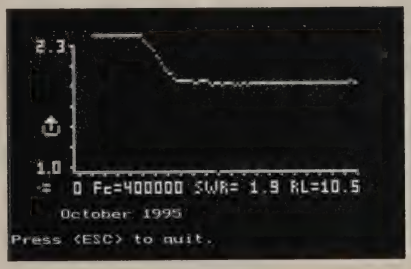
It is also possible to save your SWR plots for future comparison. Sweep your antenna system and save the plot(s) to disk. Come back in a few months or a year and sweep it again. Within seconds, you can print the plots, compare the plots and see how your system has changed over time.

System Requirements

AACOM will run on virtually any PC-compatible computer. The only requirement is the computer must have CGA graphics capability. If your computer has an EGA or VGA card, it will most likely be able to run in CGA mode.



Screen shot of AACOM software



A Plot captured by AACOM

Top view of SWR Antenna Analyst

Kantronics

Introduction to Digital Radio

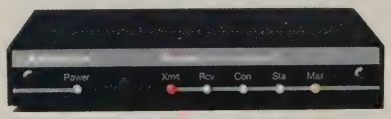
What is digital radio? There are many terms to describe what we refer to as "digital radio" including "packet radio" and "data by radio". Ultimately, all of these terms refer to the process of transporting data between computers and transceivers (radios which transmit and receive). Most Kantronics products, such as the KPC-3, KPC-9612, and KAM Plus, provide data transportation and are referred to as terminal node controllers (TNCs). In function, TNCs are similar to phone modems which connect to computers and telephones for transmission of computer data over telephone lines. However, TNCs transmit data over radio signals rather than telephone wire and are thus often referred to as radio modems. Once the data is transmitted, other digitally operated stations can receive it, and users can display the information on their computer screens.

What can I do with digital radio? All Kantronics TNCs offer a variety of applications for both beginners and veteran hobbyists. Our most basic unit, the KPC-3, operates 1200 baud packet for VHF/UHF. With the KPC-3 connected to a transceiver and computer, you can send and receive messages, carry on direct computer-to-computer conversations, receive and re-transmit global positioning system (GPS) data, and much, much more. These basic features have also been incorporated into the KPC-9612 and KAM Plus which offer a variety of additional features to satisfy even the most highly skilled and discriminating amateurs. For example, G-TOR, the newest and fast mode for HF digital communications has been added to the KAM Plus, and paging transmission and reception have been added to the KPC-9612.

What equipment will I need to get started? To send data by radio, you will need a transceiver, a computer, and a TNC. For communication between your computer and TNC, some type of terminal software is required. For your convenience, all Kantronics TNCs include Pacterm on 3.5 inch diskette, a basic terminal program. Trial copies of complimentary third-party software (KaGold and KaWin) are also included.

KPC-3 *The #1 choice for 1200 baud packet*

The KPC-3 is a full-featured 1200 baud packet modem (TNC) used for sending and receiving data by radio. The KPC-3 connects quickly and easily to your computer's serial port and a VHF/UHF FM radio. Once connected, it is ready to send and receive mail, receive and re-transmit GPS data from a GPS unit, monitor and make contacts, and more! The panel design and included connection kit make cabling easy, and our new-user command set and on-line helps provide maximum performance for beginners as well as veteran packeteers.



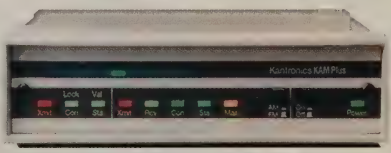
KPC-3 – **$119.95**

KPC-3 Features

- 9-volt battery operation, so it is perfect for portable applications
- APRS and NMEA-0183 GPS compatibility
- 32K RAM (20K of mailbox space) or 128K RAM (100K of mailbox space)
- K-Net™ networking option (NET/ROM™, TheNET compatible)

KAM Plus *The ultimate multi-mode TNC*

The KAM Plus is a dual port, HF/VHF multi-mode terminal node controller used for sending and receiving data by radio. Simply connect it to your computer's serial port and to an HF transceiver, a VHF transceiver, or both. Then, the KAM Plus is ready to send and receive mail, monitor and make long distance contacts, track GPS activity, and much more. The panel design, cable, and connectors make connection quick and easy, and our new-user command set and on-line helps enable even beginners to enjoy this high performance TNC. The KAM Plus supports G-TOR, Pactor, AMTOR (ARQ, FEC, SELFEC, CCIR 476 and 625), Packet, CW, RTTY, ASCII, and NAVTEX/AMTEX.



KAM Plus – **$299.95**

KAM Plus Features

- Separate HF and VHF/UHF radio ports, capable of simultaneous operation
- PBBS with more than 100K of mailbox space and remote access
- These popular modes: G-TOR®, Pactor, AMTOR, Packet, CW, RTTY, ASCII, NAVTEX/AMTEX
- APRS and NMEA-0183 GPS compatibility

Introduction to High Speed Packet

High speed packet is typically defined as the transmission of packet data at speeds of 9600 baud or greater. While interest within the amateur community seems directed at higher speeds such as 9600 and 19,200, dramatic changes in packet activity are unlikely since popular 1200 baud units such as the KPC-3 have permeated the market. This situation puts new purchasers in an awkward position. Which unit should they purchase, 1200 or 9600? Kantronics has solved this dilemma by developing the KPC-9612, featuring two simultaneously-operating radio ports, one at 1200 baud and one at 9600 baud (configurable for 4800 or 19,200 also).

KPC-9612

9600 and 1200 baud at the same time

The KPC-9612 is the first dual-port TNC capable of operating high-speed packet (9600 and beyond) and 1200 baud packet at the same time. With this flexibility, the KPC-9612 is the perfect packet choice. Off the shelf, the KPC-9612 is ready for 9600 (or 19,200) and 1200 baud activity and can be cabled to either one or two radios. Regardless of the speed you choose, the KPC-9612 is equipped with all the features typical of Kantronics' industry-leading TNCs: packet mailbox, GPS compatibility (NMEA-0183 standard interface), APRS compatible, KA-Node networking (and optional K-Net networking firmware – NET/ROM compatible.) In addition, the unit supports amateur paging, the transmission and monitoring of 512, 1200, and 2400 baud Radiopaging Code No. 1 (POCSAG) messages. Nine keyboard paging commands were added to the version 7.0 firmware in addition to a paging server. Via the server, amateurs may connect to the KPC-9612 and send a page, view a log of pages sent, or list a directory of callsign-page IDs.

KPC-9612 – **$209.95**

More on Amateur Digital Paging: The digital paging transmission and reception formats adhere to the POCSAG commercial standard. Hence pagers sold by resellers are readily available for conversion to amateur use. We offer pager crystals, a recrystalling service, and refurbished Bravo Plus™ pagers recrystalled for 2 meters and 70 cm. For an up-to-date list of crystals (frequencies) view our internet webpage, http://www.kantronics.com/. We also offer the *Pager Handbook for the Radio Amateur,* by WØXI. This "tell-it-all" handbook includes a description of the POCSAG standard and instructions for do-it-yourself recrystalling of pagers for amateur use.

KPC-9612 Features

- Separate radio ports capable of simultaneous operation
- One radio operation with both speeds
- 9600 baud port, also configurable to 4800 or 19,200 baud
- 9-volt battery operation, so it is perfect for portable applications
- APRS and NMEA-0183 GPS compatibility
- Terminal, Host, GPS, BBS, **amateur paging**, KISS, and Extended G8BPQ KISS modes
- 32K RAM (20K mailbox) or 128K RAM (100K mailbox)
- K-Net networking option (NET/ROM, TheNET compatible)

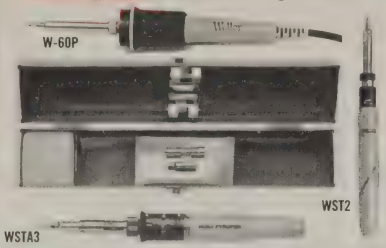
QuickCheck *A quick reference guide to Kantronics products*

	High speed	Dual port	Packet	HF and VHF	Paging Transmit & Monitor	GPS capable	APRS compatible	K-Net networking	Can run on 9-V battery
KPC-3			✔			✔	✔	O/U	O/U
KPC-9612	✔	✔	✔		✔	✔	✔	O/U	O/U
KAM Plus		✔	✔	✔		✔	✔		
Data Engine	✔	✔	✔				✔		

© 1996, Kantronics Company, Inc. • G-TOR is a registered trademark of Kantronics Co., Inc. • K-Net is a trademark of Kantronics Company, Inc. • NET/ROM is a trademark of Software 2000, Inc. • Bravo Plus is a trademark or registered trademark of Motorola Inc.

Kantronics

WELLER SOLDERING EQUIPMENT



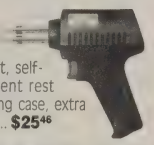
▶**W-60P 60-Watt Pencil-type Soldering Iron** For most electronic circuit work. Temperature controlled with tips available for 600°, 700°, or 800°F. Supplied with 1/16" 700°F screwdriver tip. Only 7½" long, 2½ oz. 6 ft. cord. 120VAC..... **$57.45**

▶**WP-25 25-Watt Pencil-type Soldering Iron** For work on more delicate electronic circuits. 750°F tip temperature. 7⅞" long, 1¾ oz. 4 ft. cord, 120V AC..... **$30.06**

▶**WSTA3 Pyropen® Butane Soldering Iron** Lightweight and completely portable. Operates for up to 3 hours on a charge of cigarette lighter butane. Soldering temperature control is adjustable from 392° to 932°F, with fast heat-up time It's ready to solder in just 30-seconds! Supplied with tips for soldering, hot air (1202°F), and brazing..... **$89.95**

▶**WST2 Pyropen® Jr.** A portable mini butane powered soldering iron. Recharges in seconds from a regular cigarette lighter butane container. Soldering temperature is adjustable from 392° to 842°F. Also, hot blow feature (806°F) and torch feature (2372°F). Comes with handy pocket clip..... **$69.95**

▶**7200PK Soldering Gun** Compact, lightweight, 75watts. Handles connectors and almost any other heavier soldering job. The flat, self-supporting back acts as a convenient rest when not in use. Comes with carrying case, extra tip, and solder, 120V **$25.46**



▶**WTCPT Controlled Output Soldering Station** Provides three temperature ranges: 600°F, 700°F and 800°F. This lightweight pencil iron is safe for IC soldering. Power unit with unitized on-off rocker switch with indicator light. Storage tray holds extra tip and tip cleaning sponge..... **$109.95**

▶**EC-1002-1 Soldering Station** Compact! The soldering pencil stand connects to right or left side of unit. Variable temperature, indicator light, self feeding reservoir. Handy tray stores extra temperature sensing tips. **$199.95**

Hi!... I'm Rick, N9PMR

Call in the afternoon for the least chance of finding our phone lines busy!

WAHL SOLDERING EQUIPMENT

▶**7740 Cordless Soldering Iron** Tip performance up to 50 watts and over 700°! Contains a premium nicad battery for high-rate charging; a partially discharged unit will return to full capacity within 1–2 hours, with a complete recharge in 3–4½ hours. Replaceable battery and worklight. Comes with recharging stand, fine and heavy tips..... **$34.95**

▶**7980 Butane-Powered Soldering Iron & Torch** Cordless and refillable, features a rugged aluminum body and even-flow valve for uniform flame. Uses standard high quality cigarette lighter butane. Up to 100 minutes of continuous solder per refill with adjustable tip temperatures up to 1067°F. Up to 60 minutes of continuous torch flame with adjustable temperatures up to 1300°F. Includes 2.4mm tip and protective cap with igniter..**$29.95**

▶**7985 Butane-Powered Soldering Iron Kit Pack** Soldering Iron/Torch in a convenient kit pack with protective igniter cap, torch attachment, 2.4mm and 1.00mm tips, wiping sponge/well, and in-use stand/rest in a carrying case... **$49.95**

Communications Specialists

TONE ENCODER & DECODERS

▶**SS-32P Programmable CTCSS Encoder** On board DIP switch programs 32 EIA tones from 67 to 203.5 Hz. Microminiature, fits inside most transceivers. 0.9" x 1.3" x 0.4", requires 6-30 VDC..... **$28.95**

▶**SS-32SMP Programmable CTCSS Encoder** Super small for easy installation in most handhelds. Standard with 32 EIA tones between 67 and 203 5 Hz. Individual tones are selectable by soldering binary coded jumpers. 0.53" x 1.0" x 0.16", 6-15 VDC..... **$27.95**

▶**TS-32P Field programmable CTCSS Encoder-Decoder**. DIP switch programmable for 32 EIA tones from 67 to 203.5 Hz. 1¼" x 2", 0.4", 6 -25 VDC **57.95**

▶**DTD-1 DTMF Decoder** Small high quality, low cost .Decodes any one of 5,040 4-digit codes to provide a latched or momentary open collector output for single function operations. 1¼" x 2" x 0.4", requires 6–12 VDC..... **$59.95**

▶**TE-32 Multi-tone Encoder** Provides direct access from a front dial rotary switch to all EIA CTCSS tones from 67.0 to 203.5Hz, allowing users to access various repeaters Great for mobile or test bench! 5¼" x 3.3" x 1.7", 6–30 VDC **$49.95**

PIPO Communications

HIGH QUALITY DTMF ENCODERS

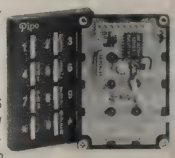
- 12-digit or 16 digit pads
- Steel Keys
- Sealed Gold Dome Contacts
- Self-contained
- NO RFI
- Simple 3-wire connection
- Voltage 8.5 to 16V DC
- Temperature -22 to +160 F
- Adjustable level and timing
- Front panel adjustable
- Includes template, hardware and schematic

• **PK-1** 2.65"h x 2"w x .045" – • **PK-2** 2.65"h x 2.5"w x 045"d

K-Series option: features a built-in keying circuit and relay to automatically key a transmitter or other system. When any key is depressed, a relay closes for 0–3 seconds, time is adjustable with a trimpot.

M-Series option: a special encoder package for mounting any PK-1/1K, PK-2/2K PIPO encoder to surfaces that are inaccessible from the rear such as walls, mobile dashboards, panels, etc. Consists of a frame which secures to the mounting surface with the encoder press-fitting into the frame.

P-7V Features similar to the K-Series but rugged-design for the demanding Land Mobile Industry. The choice for radios or systems exposed to harsh or abusive environments. Features miniature electronic design, low distortion, adjustable audio output 12-key, vertical. format, 2.16"h x 1.50"w x 0.20"d.



See **PIPO** in the Price List

TRANSMITTING TUBES

EIMAC

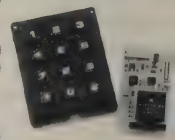
3-500Z... ea.	**$183.00**
3CX800A7	**412.00**
3CX1200A7	**665.00**
4CX250B/7203	**149.95**
8873	**458.00**
8874/3CX400A7	**439.95**
8875	**499.00**
8877/3CX1500A7	**935.00**

MISC.

6146B	**$14.95**
3-500G	**109.95**
572B	**49.95**
811A	**14.95**

▶**TE-64 Multi-purpose Encoder** Provides 64 frequencies which include 32 sub-audible, 19 burst-tone, 8 Touch-Tone® and 5 test frequencies. Separate outputs for high and low frequency ranges. 5¼" x 3.3" x 1.7", 6–30 VDC... **$79.95**

▶**ID-8 Multi-Featured Automatic Morse Station Identifier** Programmable via 12-button keypad. Eight changeable messages, 200 characters total. CW speed: 1-99 wpm; ID interval timing: 1-99 minutes; ID hold-off timing: 0-99 seconds; CW tone: 100-3000Hz. Board: 1.85" x 1.12" x .0.35"... ..... **$89.95**



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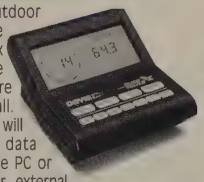

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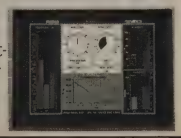

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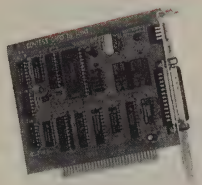

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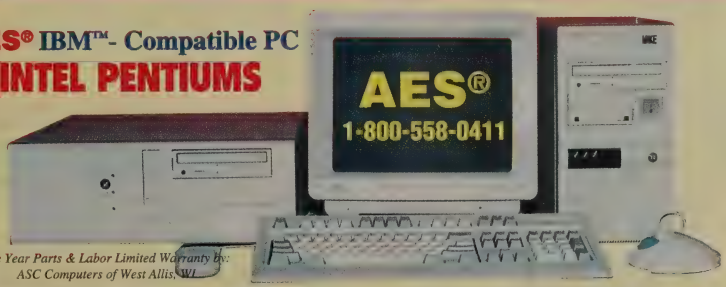

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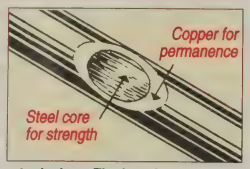

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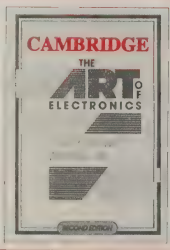

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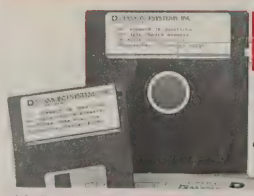

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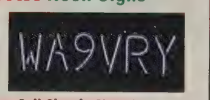

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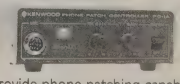

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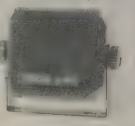

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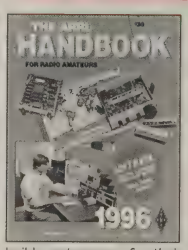

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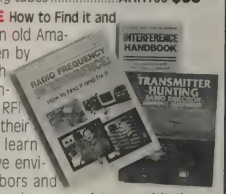

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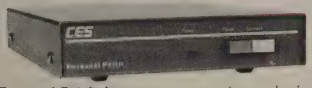

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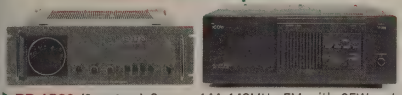

▶**RP-1520 (2-meters)** Covers 144-148MHz FM with 25W output. Fully synthesized – no retuning after changing frequency. Features: User programmable call sign ID; Hang-up and time out timers; Manual transmit; DTMF decoder for remote control operation; Local inhibit function and CTCSS encoder; Excellent IMD attenuation. Sensitivity: <0.5uV for 12 dB SINAD. Built-in speaker and microphone connector. 117V AC or 13.8V DC. 16¾"w x 5⅞"h x 14½"d, 37½ lbs.....**$2499.95**

▶**RP-2210 (220 MHz)** Features are similar to RP-1520 shown above. Covers 220 to 225 MHz in 5 kHz tuning step increments with 25W output. CTCSS and hang-up timer are dip-switch programmable. EPROM programming for ID **$2229.95**

▶**RP-4020 (440 MHz) (right)** Similar to R-1520/2210 but different appearance. Covers 450MHz, 25W. Digital password prevents undesired remote access .....**CLOSEOUT $1599.00**

▶**RP-1220 (1.2 GHz)** Similar to ICOM repeaters above. Synthesized, covers 1240 to 1300 MHz with 10W (high) or 1W (low) output. Battery back-up connector. Most functions can be remotely controlled using DTMF codes **$2849.95**

YAESU FM Repeaters

▶**VXR5000VADC** 135–175 MHz
▶**VXR5000UCDC** 400–512 MHz
Both Models **$1199.95**

- 25 Watt Continuous Duty Power
- 8 Channels • PLL Synthesized
- 110/220 VAC or 13.8 VDC @ 6A
- CTCSS Encode/Decode included
- Repeater/Base Sta. Operation
- Fully Programmable Functions including Hang-Up Time and Time-out Timer • Options
- Wall Mountable or fits in a Standard 19 inch Rack
- DB-25 Connector for Accessory and 8-PIN Modular Jack for Telephone Line.
- Modular Card Style Unit Construction • E-Z Open Cabinet
- 14¾" x 10¾" x 4⅜", 25½ lbs

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W5YI/WEST

NO CODE PLUS TECHNICIAN STUDY GUIDE *by Gordon West, WB6NOA*

Are you anxious to get on the air? Here's everything you need to become a licensed ham – quick and easy without passing a Morse code test! New 2nd edition, by Gordon West, WB6NOA covers the newest exam questions of July 1, 1993 to 1997. This fully illustrated 236-page textbook includes all possible questions, multiple choices and answers.....▶**GWNC $9.95**

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You've earned your Ham Ticket... ... Now What?

You're ready to get on the air but not sure how to actually install an antenna, how to solder a PL-259 connector, properly ground your station or identify unknown transistor leads, etc. Here's the perfect companion for exploring the more technical aspects of the world's greatest hobby. Topics: Simple Explanations of Basic Electronics; Basic Antenna Theory; Building your own Equipment; Setting up your Amateur Station and More! This book doesn't stop at the intermediate level. You'll find handy hints no matter how long you've been licensed, and you won't need a PhD in engineering to understand the material. *By Bob Heil, K9EID – 168 pages.* **$12.95**

DAIWA Coaxial Switches

▶**CS-201 Two position Coax Switch (left)** Cavity construction for low VSWR, less than 0.2dB insertion loss and 60dB isolation up to 600MHz. 2.5KW PEP or 1KW CW. SO-239 connectors, the unused terminal is always grounded.for protection ...**$29.95**

▶**CS-401 Four position Coax Switch (right)** Cavity construction for low VSWR, less than 0.2dB insertion loss and 60dB isolation up to 800MHz. 2.5KW PEP or 1KW CW. SO-239 connectors, unused terminals are always grounded...**$119.95**

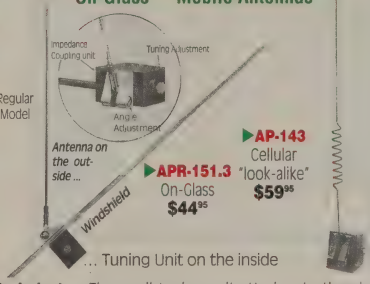
RF Products

Improve mobile HT performance! Get the RF outside of the vehicle. Simply attach the rubber duck antenna from your HT to this handy magnetic mount and place it outside, on the roof or trunk, where it can radiate without obstruction.

▶**199-416** accepts BNC connector, with 10 ft. coax and BNC..... **$17.95**

Antenna Specialists

"On-Glass™" Mobile Antennas



▶**APR-151.3** On-Glass **$44.95**

▶**AP-143** Cellular "look-alike" **$59.95**

No holes! ... The small tuning unit attaches to the glass inside the vehicle, and couples capacitively thru-the-glass to the radiating element mounted on the outside. Installs with DUOBOND™ adhesive that is easily removed without damage. Includes adhesive, 15 ft. of coax and PL-259 connector

Power	100 watts	**Radiator**	Electrical 1/2-wave
Frequency Range	144-174 MHz (APR-151.3I) 138-150 MHz (APR-143	**Coupling Unit**	shunt fed, dc gnd
		Whip Material	Stainless steel, black DURA-COAT ™ finish
Bandwidth	6 MHz tunable	**Whip Length**	33 in. (APR-151.3) 23 in. (AP-143)
VSWR	Less than 1.5:1		
Impedance	50Ω nominal	**Cable**	RG-58/U, 15 ft. with PL-259

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Quality Goes the Distance.

Extend A Phone Cordless Phones

UNIDEN XC-3510 25 Clear Channel AutoScan Cordless Extend-A-Phone 25 Channel operation provides improved "clear channel" performance. Loaded with exceptional features and built with quality: 10 Number Memory – program up to 10 numbers for quick dialing;. 3 One-Touch Memory Dialing – instantly access most frequently called phone numbers; 25 Channel AutoSCan – automatically scans up to 25 channels to insure the clearest reception;.Tone/Pulse Dialing; 14-Day Long Life Battery; Flash/Redial; Page/Find; Hearing Aid Compatible; Security feature – electronically locks phone to correct handset to prevent phone from being activated by other electronic equipment **$79.95**

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▶ **A-8477** TVI protection from 6 to 160 meter transmitters. >45dB attenuation at 52MHz and lower. 75Ω type-F connectors.....**CLOSEOUT $9.95**

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Isobar - The World's Most Advanced Surge Suppressors

With over 6 million in use, Isobars are simply the best surge suppressors money can buy. Protect your equipment with up to $25,000 Ultimate Lifetime Insurance!

- Rugged metal case won't break, burn or melt - takes the abuse plastic models can't
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- Isolated filter banks eliminate connected equipment interference
- "Cascade circuitry" provides increased noise protection for sensitive equipment
- **Ultra** models offer increased surge protection and diagnostic LEDs
- Up to $25,000 Ultimate Lifetime Insurance covers Isobar and connected equipment against direct surge damage - even lightning strikes!

Model #	Outlets	Special Features	Joules	Reg. Price	AES Price
Isobar 4	4	2 isolated filter banks, $10K Ult. Ins	1050	$79.95	$49.95
Isobar 6	6	3 isolated filter banks, $10K Ult. Ins.	1200	99.95	59.95
Isobar 8 Ultra	8	4 isolated filter banks, LEDs, $25K Ult. Ins.	1200	116.95	79.95
IBAR 12	12	Rackmount, 2 isolated filter banks, $10K Ult. Ins.	750	149.00	99.95

Super Series Surge Suppressors - Affordable, Quality Surge Protection

From the makers of the world famous Isobar, these high-quality surge/noise suppressors are perfect for home electronics. Choose your own level of protection.

- Advanced AC surge and RFI/EMI noise suppression
- Diagnostic LEDs alert users to potential power problems
- **Plus Tel** models feature Fax/Modem protection
- Up to $15,000 Ultimate Lifetime Insurance; Lifetime Warranty

Model #	Outlets	Special Features	Joules	Reg. Price	AES Price
Surge Alert (TR-6)	6	6-ft. cord, $15,000 Ult. Ins.	900	$59.95	$46.95
Surge Alert Plus Tel (TR6-FM)	6	Fax/Modem prot. $15K Ult. Ins	1200	69.95	54.95
Super 7	7	7-ft. cord, $5,000 Ult. Ins.	450	27.95	23.95
Super 7 Plus Tel	6	Fax/Modem prot. $5K Ult. Ins	450	38.50	29.95

BC Series Battery Backup Systems

Offering complete protection against surges, line noise, brownouts and blackouts, Tripp Lite uninterruptible power supplies keep your computer and radio equipment running in an emergency!

- Total power protection when the lights go out!
- Long lasting batteries give you up to 17 minutes backup time for 486/ Pentium PCs
- **BC Internet** models offer RJ11 jacks for complete Fax/Modem protection
- Reliable backup protection for HAM radios up to 40 amps available - call in special order!
- $25,000 Ultimate Lifetime Insurance; 2-yr warranty

Model #	VA/Watts	Outlets	Special Features	Reg. Price	AES Price
BC Personal 280	280/175	2	Dia. LEDs, built-in surge prot.	$129.00	$119.95
BC Personal 420	420/295	2	Dia. LEDs, built-in surge prot.	175.00	159.95
BC Internet 325	325/200	2	RJ11 Fax/Modem jacks	165.00	149.95
BC Internet 450	450/325	4	RJ11 Fax/Modem jacks	199.00	179.95
BC Internet 675	675/425	4	RJ11 Fax/Modem jacks	299.00	269.95

TRIPP LITE POWER SUPPLIES

POWERFUL VALUES FOR HAM OPERATORS

NEW! 12, 20, 30 and 50 Amp Models Available!

With a wide selectio, including Base Station models and the most popular sizes, Tripp Lite DC Power Supplies are perfect for all HAM radio equipment.

Features Include:

- ✓ Current-limiting foldback for complete over current protection
- ✓ Crowbar® overvoltage protection on 15 amp and largermodels
- ✓ High quality filtering for very low ripple/low noise
- ✓ Fully regulated output maintains 95% of no-load value
- ✓ Unbeatable product support, service and reliability
- ✓ **TL Trim Line** versions feature a low profile design to match new popular radios

Model No.	Cont. Amps	ICS Amps	Size (H x W x D)	Ship Wt. (lbs)	Reg. Price	AES Price
PR7	5	7	3¾ x 6½ x 7½	7	$55.00	$ 47.95
PR10	7.5	10	4½ x 6¾ x 7¾	10	79.00	63.95
PR12	9	12	4½ x 6¾ x 7¾	11	85.00	68.95
PR20	16	20	4½ x 6 x 10	15	125.00	94.95
PR30	24	30	6½ x 6¼ x 10¼	23	172.00	129.95
PR40	32	40	6¾ x 10½ x 11½	27	211.00	166.95
PR50	37	50	6¾ x 10½ x 11½	30	262.00	199.95
PR 60	48	60	6¾ x 10½ x 11½	33	309.00	237.95
NEW! TL Trim Line Base Station Power Supplies - For Motorola Radius, GE Monogram & GT Series Radios						
TL11	8	11	5 x 9 x 9	11	85.00	69.95
TLC11	8	11	7 x 9 x 9	11.5	97.00	79.95

ULTIMATE™ LIFETIME INSURANCE

Tripp Lite will repair or replace this product and any equipment damaged by surges, including direct lightning strikes, while protected by this product...for life!

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THE POWER PEOPLE

Looking for value in Amateur Radio?

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HF + 6 METER MOBILE/BASE/PORTABLE ALL MODE

From your daily commute to Field Day to "home" station, the DX-70T is your ticket to adventure! Work all the bands, 160 through 6 and all the modes, including 10 and 6 meter FM repeaters. Catch that "rare DX" on the way to work; the speech compressor gives your signal added "punch." If CW's your thing, work it YOUR way, from above or below the carrier frequency; select the side-tone you like and then choose full QSK, semi or "automatic" break-in. And the drive home on a summer afternoon can become very special when you catch that "sporadic E" opening on 6 meters! Don't miss a moment of action; order your DX-70T today.

- **100 Memories, each memory captures all settings, including mode, split, filter and more**
- **Detachable head that can be remotely mounted**
- **Narrow band filter and CTCSS encode board included at no extra cost**
- **Multi Function Control simplifies operation – an Alinco exclusive!**
- **Excellent price – superior value**

INTRODUCING THE ALINCO DM-1350 REGULATED DC POWER SUPPLY VERSATILITY FOR YOUR STATION'S NEEDS!

Power to spare for your station. Connect your HF radio, VHF/UHF mobile/base, TNC and use the "cigar lighter" output terminal for a laptop computer, handheld radio or other 12v accessory.

- **35A (max), 30A Continuous**
- **Front panel variable voltage output (1-14V DC)**
- **Three different output terminals including cigar-lighter port**
- **Quiet internal cooling fan**
- **Built-in circuit protection and convenient front-panel fuse**
- **Meters included at no extra cost**
- **110V and 220V AC input models available**
- **Great for bench testing and repair shop use**
- **Perfect for builders and experimenters**

Simple ▪ Clean ▪ Dependable

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2 Meter Excellence —2 Meter Excitement

THIS IS HOW IT'S DONE.

DR-130T TWO METER FM BASE/MOBILE

High-output performance at a very affordable price

- 20 memories, expandable to 100 (with EJ-19U)
- CTCSS tone encoder AND European (1750 HZ) burst at no extra cost
- Large display and controls for easy mobile operation
- "Odd Split" repeaters can be set in every memory channel
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- DTMF Tone pad microphone included at no extra cost
- Perfect for packet radio
- Up to 50 watts output, Hi/Lo selectable
- MARS/CAP modifiable (permits required)

DJ-191T TWO METER HANDHELD

Two Meter action and enjoyment, no matter where you are, or where you travel, across the country or across the ocean!

- 41 memory channels
- Easy keypad direct frequency entry
- 9 Autodial phone-patch memories
- Illuminated 16 button keypad AND display
- CTCSS encode at no extra cost
- Ready to travel the world - European tone bursts built in
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- Cloning capability
- Can also be used for packet radio
- Choose DJ-191T (1.5 watts TX) or DJ-191TH (5 watts TX)
- Receives: 135 - 173.995 MHz
  Transmits: 144 - 147.995 MHz
- Mars-CAP modifiable (permits required)

Plus many more advanced functions at no extra cost!

DR-150T TWO METER FM BASE/MOBILE WITH AIR AND UHF RECEIVE

A Two Meter Transceiver With Many "Extras"

- Receives 2 Meters, 440-449.995 MHz and Aircraft Band
- 100 memory channels
- Two Separate VFOs
- Long Tone Zero (LITZ) Emergency Alert
- Scan Modes: Program, Priority or Channel Scope Sweep Scan
- Clones over the air
- Alinco's Channel Scope℠ Band Activity Display
- Easy Access Autodial phone patch memories (up to 15 digits each)
- 9600 bps packet ready with dedicated input port
- Selectable Power output: 50/25/10 Watts
- Direct frequency entry from the DTMF microphone
- Time-out timer
- Tone scan with optional EJ-20U

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Full-featured, easy to operate, dependable performance.

- Expandable to 240 memory channels–5 memory banks!
- Detachable remote-mount face plate
- Versatile operation–VHF/UHF, UHF/VHF, VHF/VHF, UHF/UHF
- Internal duplexer at no extra cost. One easy antenna connection.
- Long Tone Zero (LITZ) Emergency Alert
- Aircraft band receive
- Includes CTCSS encode PLUS European tone bursts
- 9600 bps packet ready!
- 50/10/5 watts/2m 35/10/5 watts/440
- Alinco's Channel Scope℠ graphic band activity display
- RX - VHF 108 to 173.995 MHz, UHF 420 to 470 MHz
- MARS/CAP Modifiable (permits required)
- Cross-band repeater function

DJ-G5TH DUAL BAND HT PACKED WITH FEATURES!

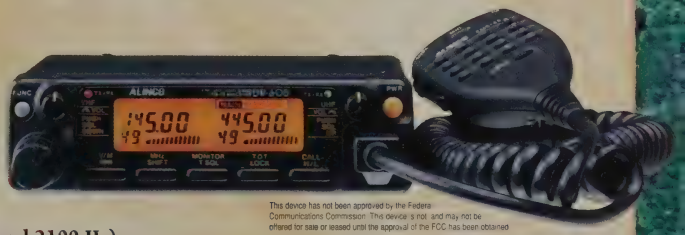
The 2 Meter/440 HT that's ready to travel the world.

- 200 memory channels (100 VHF, 100 UHF)
- 5 watts output
- Large illuminated display and backlit keypad
- Versatile operation – VHF/UHF, VHF/VHF, UHF/UHF
- Alinco's Channel Scope℠ graphic band activity display
- "Clones" over the air!
- Includes CTCSS encode/decode PLUS European tone bursts
- Aircraft band receive
- 2 PTT buttons, assign one for each band or high power/low power transmit
- MARS/CAP modifiable (permits required)

Plus many more advanced functions at no extra cost!

DR-605T DUAL BAND MOBILE/BASE ECONOMY CHAMP

Full 2 meter/440 performance at an affordable price!



This device has not been approved by the Federal Communications Commission. The device is not and may not be offered for sale or leased until the approval of the FCC has been obtained.

- 100 memory channels including cross-band memories
- CTCSS encode PLUS European tone bursts (1450, 1750 and 2100 Hz)
- 9600 bps packet ready with dedicated terminals
- Internal duplexer – one easy antenna connection
- Cross-band repeater function
- Large controls, easy to operate, easy to program
- RX - VHF 136 to 173.995 MHz, UHF 420 to 470 MHz
- TX - VHF 50 watts, UHF 35 watts
- MARS/CAP modifiable (permits required)
- Time-out timer
- With the optional EJ-24U CTCSS Tone Decoder Unit can operate in "tone squelch" receive AND search (tone scan) for a specific CTCSS tone in a received signal

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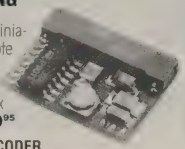
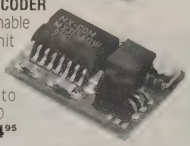
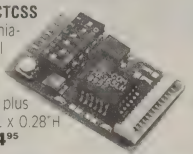
NORCOMM™ TONE SIGNALLING



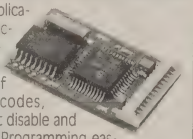
▶ **NC-101 ENCODER** Micro-miniature CTCSS Encoder, field tunable to any of the CTCSS tone frequencies between 67Hz to 254 Hz. 5 to 15VDC. 0.60"W x 0.80L x 0.15H *NorFax™ #5040*..... **$19.95**



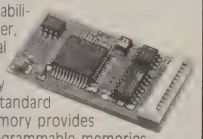
▶ **NC-104 PROGRAMMABLE ENCODER** A sub-miniature, field programmable CTCSS Encoder and Decoder unit for limited space. Provides the standard 37 EIA CTCSS tones plus 69.37, 97.4 and 205.5 Hz. 7 to 24VDC. 0.625"W x 0.80"L x 0.170"D *NorFax™ #5150*..... **$24.95**



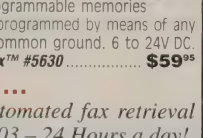
▶ **NC-106 PROGRAMMABLE CTCSS ENCODER/DECODER** A sub-miniature crystal controlled digital unit. Field programmable with dip switches providing any one of the standard 37 CTCSS tones plus 97.4Hz. 6-24VDC. 0.85"W x 1.35"L x 0.28"H *NorFax™ #5150*..... **$54.95**



▶ **NC-401 TOUCH-TONE® DECODER** A unique micro-miniature unit combining two distinct multi-addressable decoders for control of remote or local applications. Decodes all 16 DTMF characters with an address length of 1-14 characters and features E²PROM memory for storage of both primary and secondary codes, input/output functions, deadbeat disable and user outputs, plus default reset. Programming easily performed by means of a conventional DTMF encoder. 6-24V DC. 0.80"W x 1.37"L x 0.23"H. *NorFax™ #5545*..... **$59.95**



▶ **NC-409 TOUCH-TONE ANI ENCODER** A unique micro-miniature unit with field programmable ANI, 15 auto-dial memories and last number redial capabilities, plus transmit time-out timer, busy lock-out, last number redial and microphone mute function. Designed to automatically or manually generate all 16 standard DTMF characters. E²PROM memory provides non-volatile storage of all programmable memories and configurations. It's easily programmed by means of any standard X-Y keypad with a common ground. 6 to 24V DC. 0.85"w x 1.40"L x 0.22"H. *NorFax™ #5630*..... **$59.95**



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2, 6 & 10 Meter Handhelds

- ★ Heavy duty Commercial Grade construction designed to meet MIL-STD-810. Provides exceptional ruggedness and weather resistance. 2 yr limited warranty.
- ★ 5W battery standard – all models.
- ★ Backlit LCD (liquid display)
- ★ Memories: 40 in 2 banks, plus 1 temporary.
- ★ DTMF Pager and Code Squelch
- ★ DTMF Telephone Memory: (7 numbers AZ-21A only)
- ★ Scan Memory Skip
- ★ Auto Power Shut-Off
- ★ Battery Power Saver: Approximately 28 mA in Save Mode
- ★ Dimensions: 6⅞"h x 2⅝"w x 1⅝"h
- ★ Weight: Approx. 1 lb.
- ★ TRANSMITTER: High Power 5 W; Low Power 0.5W

▶**Model AZ-21A** 2-meters; 144–148MHz transmit, 136 to 174MHz FM +118-135.995 MHz AM receive..... **$299.95**

▶**Model AZ-61** 6-meters; 50–54MHz FM transmit, 46 to 54 MHz FM receive..... **$379.95**

▶**Model AZ-11** 10-meters; 28–29.7MHz FM transmit, 28 to 29.995MHz receive..... **$379.95**

AZDEN Headphones

The **DM-10** (left) and the **HS-03** with Boom Microphone (right) have been specifically designed to enhance voice reception and transmission. The lightweight, soft ear pads and adjustable headband permit long hours of use. The earphones on both models have a 20Ω impedance and a 200-5000Hz response with a 6dB rise at 2400Hz. A 1/4" phone plug is supplied. The dynamic boom microphone on the HS-03 features a 500Ω impedance and a 300-4000Hz response with a 6dB rise at 2500Hz. 8-pin connector is supplied.

▶**DM-10** **$49.95** ▶**HS-03** **$49.95**

▶**PTT-01** Push-to-talk switch for HS-03 boom mic **$39.95**

2, 6,10 Meter 220 & 440MHz Mobiles

Designed to meet the Heavy Duty requirements of MIL-STD-810

- ★ C-MOS microcomputer control
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- ★ Keyboard up/down frequency selection
- ★ Feather-touch keyboard
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- ★ Multi-function microphone
- ★ Built-in programmable tone encoder
- ★ Optional tone squelch decoder unit
- ★ 2"h x 5.5"w x 7.25"d

▶**PCS-7000H** 2-meters; 144–148MHz transmit, 136–174MHz FM plus 118-135.995 MHz AM receive, 50/10W **$339.95**

▶**PCS-7500H** 6-meters; 50–54MHz FM transmit, 46–54 MHz FM receive, 50/5 watts. **$389.95**

▶**PCS-7800H** 10-meters; 28–29.7MHz FM transmit, 28–29.995MHz receive, 50/5 watts..... **$389.95**

▶**PCS-7200** 220MHz; 215–230MHz FM, 25/5W **$409.95**

▶**PCS-7300H** 440MHz; 420–470MHz FM, 35/5W.... **$439.95**

▶**PCS-9600D** 440MHz; 430–450MHz FM, 35/10W. A 9600 baud data radio. Plug and play from from panel.....**$649.95**

▶**AZDEN PTT-02 UNIVERSAL VOX** Gives any radio the advantages of remote manual or voice-triggered transmission with variable microphone gain and adjustable frequency equalization. Usable with all types of microphones, including dynamic and electret. A removable belt clip, Velcro tape, and soft desk pad permit universal mounting. An OFF-PTT-VOX switch permits either normal push-to-talk or VOX operation. An adjustable (0 to +8dB) 2kHz gain control coupled with an overall (0 to +10dB) gain control matches most microphones to most radios and shapes the frequency response. 2.4"w x 0.87"h x 3.35"d. Requires a 9V battery **$49.95**

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▶**COMET CA-HV Mobile Antenna** Designed specifically for use with the **ICOM IC-706** HF through 2 meter radio. Choose either 1 or 2 of the following HF coils: 40/(*20)/15/10 meters along with constant operation on 6 and 2 meters. Unique fold-over hinge brings the antenna down to about 6 inches in height for entering garages, etc. Mounts to most SO-239 type trunk mounts, and is about 6 ft. tall with the 40 meter resonator on the top.

COMET makes several duplexer combinations. The CF-530 to combines both the HF/6 meter and 2 meter radio connectors into a single connector going to the CA-HV. Should you want to use separate HF, 6 Meter and 2 Meter antennas, the COMET CF-360B duplexer will separate the HF/6 meter radio connector back into an SO-239 for HF and SO-239 for 6 meters. **CA-HV Antenna – $129.95** *20 meters is an optional coil: ▶ **L-14 14MHz coil – $39.95**

▶**CF-530** HF/2M-440MHz Duplexer – **$79.95** ▶**CF-360B** HF/6M-440Mhz Duplexer – **$69.95**

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PCS-7500H 6-METER MOBILE

(73 8/94) ..."its handheld PTT microphone has a solid feel and produces solid transmit audio. Its receive audio is full, loud and undistorted, and sounds better than many mobile rigs. And the rig is beautiful... maybe the only game in town for a moderately priced 6-meter FM rig." ***(Radio Fun 10/94)*** ..."The Azden PCS 7500H exceeds my performance expectations! It's a real bargain in today's ham equipment marketplace and every 7500H owner I've talked to agrees with me!"

PCS-7200 220MHz MOBILE

(73 3/95) ..."An excellent entry-level radio for newcomers and oldtimers alike. With 25 watts output power and sensitive, selective receiver, it's a 'workhorse' radio that will serve a variety of needs."

AZ-61 6-METER HANDHELD

(QST 3/95) ..."With the AZ-61, Azden brings the convenience of an H-T to the 6-meter FM World... The design is rugged and Azden backs the durability with a two-year warranty (unique in the amateur equipment market)... The AZ-61 was a pleasure to use. The radio performed well in all applications: mobile, portable, and home." ***(CQ 1/94)*** ..."I was pleasantly surprised to hear just how good it sounds, both on receive and to the other operator on transmit. The ability to program so many different aspects of the radio also makes it quite attractive... Did I say that I enjoy using the radio? I certainly do! You will also enjoy owning one of them." ***(73 11/93)*** ..."This IS an advanced-featured handheld...I like it. I like the Azden AZ-61 6-meter a lot."

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PCS-9600D VOICE/DATA TRANSCEIVER

(QST 5/95)..."Putting it simply, the PCS-9600D is an outstanding transceiver. In fact, it is the only single-mode base/mobile rig that we've tested that is truly 9600-bit/s ready... The Azden PCS-9600D offers the best of both worlds. It's a capable 440-MHz voice rig and a true "9600-baud ready" packet transceiver."

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▶C-168A 2M Handheld Very small! Covers 144–147.995 MHz transmit and 115–175 MHz receive, including (AM) aircraft band. Modifiable for MARS/CAP transmit*. 40-memory channels (optional 200 channel memory unit plugs-in). 7 types and 3 modes of scanning. Output: 2.5W output with included 700 mAh, 7.2V battery; 5W at 12V. CTCSS encode and decode , DTMF squelch with page. 4.9"h x 1.8"w x 1.2"d, 10 oz..... **$314.95**

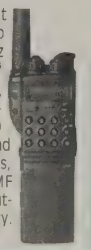
▶C-468A Same as C-168A described above, but covers 438–449.995MHz transmit and 400–470MHz receive **$339.95**

▶C-188A 2M Thin Handheld Small – fits in shirt pocket, slide-cover protects keyboard. Covers 144-147.995MHz transmit and 115-175MHz receive including (AM) aircraft band. Modifiable for MARS/CAP transmit*. 40 memory channels (optional extra 40 or 200 memory units plug-in). Ten 15-digit autodial memories. Output: 2.5W with included 700 mAh 6V battery; 5W at 9.6V. 7 types/3 modes of scanning. CTCSS encode and decode. 5.8"h x 2.3"w x 1.0"d, 10 oz..... **$279.95**

▶C-288A Same as C-188A but covers 220-225 MHz transmit and 115-249 MHz (Standard's Super-Extended receive) **$369.95**

▶C-528A Deluxe Twin Band Handheld 2M and 440MHz. Covers 144-147.995 & 438–449.995MHz transmit, 130–170 & 400-470MHz receive. Modifiable for MARS/CAP transmit*. Full-duplex cross-band repeat. 40 memory channels (20+20) + 2 call + 2 vfo. Output 2.5W on both bands with the supplied 700 mAh, 7.2V battery, 5W with a 12VDC source. 5 scan modes per band. CTCSS encode/decode included. DTMF squelch/page. 6¼"h x 2¼"w x 1¼"d, 17 oz..... **$439.95**

▶C-228A Same as C-528A but 2m/220 MHz. Covers 144–147.955 & 220–224.995 transmit and 130–174 & 220–245 MHz receive. Output: 2.5W on both bands..... **$599.95**



▶C-628A Same as C-528A but 440MHz/1.2GHz Covers 438 to 449.995 tx, 400 to 470MHz rx and 1240–1300MHz tx/rx. Output: 2.5W (440MHz), 1W (1.2GHz. **$669.95**

▶C-568A Covers 2M/440MHz/1.2GHz tx , receive ranges: 110-199.995, 310-399.995, 345-399.995, 400-485, 800-975.995 (cell blocked) and 1200-1299.990 MHz. AM programmable and auto-detect for VHF aircraft band. 40 memories, CTCSS encode and decode, paging, DTMF squelch, battery saver, auto power-off. 2.5W output (35mW on 1.2GHz) with standard battery. 5¼"h x 1¾"w x 1⅜"d , 13¾ oz..... **$599.95**

▶C-558A Dlx. Super Compact Twin Band HT Covers 2 meters and 440MHz. Ranges: 144-147.995 and 438–449.995MHz transmit, 115–170 and 400-470MHz receive, including (AM) aircraft band. Modifiable for MARS/CAP transmit*. Full-duplex cross-band repeat. 40 memory channels; optional extra 40 or 200 plug-in memory units available. Ten 15-digit autodial memories. Output: 2.5Wboth bands with supplied 700 mAh, 7.2V battery or 5W at 12VDC. Five scan modes; 3 types on each band. CTCSS encode and decode included. 5⅛"h x 2¼"w x 1¼"d, 12.5 oz ... **$549.95**

▶C-108A 2 Meter Handheld TINIEST HANDHELD EVER! Fits in your shirt pocket! 200mW output – plenty for hamfests, picnics, conventions, or working nearby repeaters. Extended receive: 100–175MHz including AM aircraft band. 20 memories, CTCSS encode built-in (23 tones). 4 scan modes Powered by just 2 AA's 3¼"h x 2⅜"h x 1"d, 5 oz..... **$224.95**

▶C-508A Dual Band Handheld Wideband coverage. See details on page 82 ..... **$284.95**

▶C-178A Dual Band Handheld Up to 5W on 2M and 50mW on 440MHz. Covers 144-148 and 438–450MHz transmit. Extended receive: 110–174 and 320–475MHz, including AM aircraft band. Modifiable for MARS/CAP transmit. 40 memory snap-in chip with optional extra 40 or 200 memory chips available. CTCSS encode/decode. Seven scanning modes, including CTCSS scan. 2W/2m with supplied 700mAH, 7.2V battery, 5W/2M at 12V. 4¾"h x 2¼"w x 1¼ "d, 13 oz..... **$399.95**

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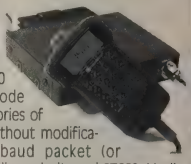


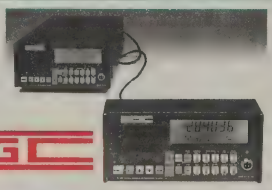
▶C-1208DA 2 Meter Mobile 50W of power totally controlled from the microphone! Remote the radio anywhere: the microphone has a large LCD display, all controls, and speaker. Super extended receive 100-200 and 250-520MHz including (AM) aircraft band. 100 memories. CTCSS encode/decode built-in. 10 DTMF autodial memories of 15 digits each. Plug-in ready without modification for high-speed 9600 baud packet (or 1200/2400). 6 scan modes, including priority and CTCSS. Modifiable for MARS/CAP transmit*. 5½"w x 5¾"d, 1.7 lbs ... **$479.95**

▶C-5718DA Twin Band Mobile 2M/440MHz with 110-199 and 250-499MHz extended receive including (AM) aircraft band. Operate as one unit with an optional snap-on twin frequency display front panel, or remotely, out of the way, using the optional front panel extension cable. Also, control the radio remotely with the remote control microphone which has a back-lit keypad, twin LCD display and speaker, built-in! 50W (2M), 40W (440MHz). 40 memories (opt. 200 channel memory chip plugs-in). CTCSS encode/decode built-in. Crossband repeat mode. Full-duplex crossband transmit/receive. DTMF paging and coded squelch. 8 kinds of scan, including CTCSS scan; each band scans separately. Dual frequency receive: 2-VHF, or 2-UHF, or 1-VHF and 1-UHF. Packet ready for 9600 (1200/2400) baud, and interface for VHF/UHF; just add a TNC. Modifiable for MARS/CAP tx. 1⅜"h x 5½"w x 5⅜"d, 2.2 lbs. **$719.95**

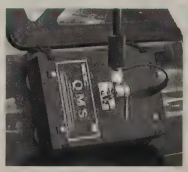
▶*New!* C-5900A Three Band Mobile 6M, 2 and 70 cm, with crossband repeat, remote operation with detachable front panel, or wireless control from your HT's DTMF pad. 1200-9600 baud packet. 7 priority memories, and up-and download frequencies to the optional 200 channel memory chip without a computer – more details on page 83. ..... **TBA**

▶CCR-708A Communications Test Receiver with Spectral Display Scope Full Coverage from 50 to 904.995MHz (Cellular Blocked). LCD spectral display scope is used for evaluating signal strength and tracking down near by interfering signals. 100 memory channels. AM, N/FM, and W/FM modes. Display range: 100 KHz, 250 KHz, or 1000 KHz. 13.8V DC or 120V with the supplied AC adapter. 2⅞"h x 7⅞"w x 7⅞"d, 4.6 lbs..... **$750.00**

See p.p. 117 to 119 & the Price List for other SGC products & accessories



▶SG-2000 Amateur HF Transceiver A rugged Commercial Grade HF transceiver that provides 150W PEP output. Modes: A3A, A3H, A3J and CW in LSB and USB, true AM in receive mode and data. Comes programmed with 644 ITU channels and 100 user defined channels that can be set to the Ham frequencies within the 1.8–30 MHz range; receives 500kHz-30MHz. Keypad control with 21 illuminated keys. Scans ITU channels and 100 memories in user adjustable scan speeds and rates. The large LCD, wide-angle display has adjustable backlighting which provides easy viewing night or day. The SG-2000 operates as a single unit, or the front panel can be removed to function as a remote head. Built-in computer control capability allows the SG-2000 to be controlled by any standard RSS-232 protocol connector for easy operation on all digital modes. Requires 12VDC @ 16A. 4¾"h x 10"w x 15"d, 12 lbs ..... **SGC 04-01 $1479.00**



▶SG-230 The Smartuner® An automatic HF antenna tuner capable of tuning any length antenna from 8 to 80 ft. long with in the 1.8 to 80MHz frequency range; 160 meter operation requires an antenna with a minimum length of 8 ft. Operates with very low power, it even tunes itself on an SSB signal; handles up to 150W. A microprocessor controls the switching of 64 input and 32 output capacitor combinations, plus 256 inductance combinations in a pi-network to tune an unknown antenna in just two seconds. 500 instant memories store previous tuning combinations to tune in milliseconds. Waterproof,for mobile-marine! Requires 10–5VDC @ 0.9A.12"w x 16"d x 3"h, 8 lbs ... **SGC 54-12 $489.95**

▶QMS Antenna Tuner System The QMS is an SGC Smartuner® automatic antenna coupler, an SG-303 9 ft. extended full range antenna, and a special exterior-waterproof mounting package, all-in-one. It looks unusual, but it gives any mobile operating in the 1.8–30MHz range with up to 150W, an almost unbelievable jump in reception and transmitting range (3-20dB). Mounting the tuner on the outside reduces engine noise and eliminates power draining antenna wire runs between the antenna and tuner. It attaches to vehicle using high suction devices and nylon webbing, and provides a rugged antenna installation without holes. 18"w x 12"d x 5"h, 24 lbs ... **SGC 55-47 $895.00**

▶SG-500 The SmartPowerCube™ A fully automatic bandswitching, microprocessor controlled HF linear amplifier designed to do exceptional service in fixed, mobile, and marine applications in the 1.6 to 24 MHz range. A rugged RF power amplifier with a rugged-cast-aluminum enclosure and extra heavy duty heat sinks, powder coat finish, and the most durable electronic components. New assembly techniques result in a nearly indestructible, compact and light, unit. It's specifically designed to operate in an unattended manner making it ideal for installations where access to the amplifier is limited. Output is 500W PEP, with 50W to 90W input; CW rating is 500W output for 10 minutes, or unlimited time with an optional fan. Requires 10.0 to 18.0 VDC @ 40A average (SSB), 90A peak, or CW. 6"h x 12¼"d x 11½"w, 21 lbs ..... **SGC 52-96 $949.95**

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HF (160–10M) + 6M + 2M • ALL MODES!

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- Speech Processor
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- Tone Encode Built-in
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STANDARD®

C158A 2 Meters
The Affordable HT

- 5 Watts at 12 VDC
- 20 memories
- 130-170MHz extended receive
- Unsurpassed 0.158 microvolts sensitivity
- CTCSS encode and decode
- DTMF squelch with Paging
- 3 modes of scanning

*Modifiable for MARS/CAP

C168A 2 Meters
The Deluxe Small HT

- 5 Watts at 12 VDC
- 40+ memories (or optional 200+ with plug-in chip)
- 115-174MHz extended receive (including AM aircraft band)
- CTCSS encode and decode
- DTMF squelch with Paging
- 3 modes of scanning

*Modifiable for MARS/CAP

C178A 2 Meters
(+ low power 440)
The Deluxe Dual-Band HT

- Single-Band Price 5 W (2M) at 12 VDC & 50mW (440)
- 40+ memories (or optional 200+ with plug-in chip)
- 110-174 & 320-474MHz extended Rx (including AM aircraft band)
- CTCSS encode and decode
- DTMF squelch with Paging
- 3 modes of scanning

*Modifiable for MARS/CAP

C288A 220MHz
The Slim-Line HT
Fits in your shirt pocket!

- 5 W at high power
- 40+ memories (or optional 200+ with snap-in chip)
- 115-249MHz super extended receive
- CTCSS encode and decode
- DTMF squelch with Paging
- 3 modes of scanning

C188A 2 Meters
The Slim-Line HT
Fits in your shirt pocket!

- 5 W at high power
- 40+ memories (or optional 200+ with snap-in chip)
- 115-174MHz extended receive (including AM aircraft band)
- CTCSS encode and decode
- DTMF squelch with Paging
- 3 modes of scanning

*Modifiable for MARS/CAP

C468A 440MHz
The Deluxe Small HT

- 5 W at 12 VDC
- 40+ memories (or optional 200+ with plug-in chip)
- 400-474MHz extended receive
- CTCSS encode and decode
- DTMF squelch with Paging
- 3 modes of scanning

*Modifiable for MARS/CAP

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* Modifications for MARS/CAP transmit require an appropriate license.
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DUAL BAND ANTENNA

STANDARD has done it again!

Great radios come in small packages. First came the C108A - the tiniest 2m radio - operates on 2AA batteries and fits in your shirt pocket.

Next, GREATNESS evolved into the C508A the DUAL BAND big brother to the C108A - it too, fits in your shirt pocket and operates on 2AA batteries, and more... The C508A has 280mW of output (comparable to low power of most HT's operating on a nicad battery pack) adequate power to hit most local repeaters with its helical designed antenna.

Take it anywhere.

The C508A is perfect for HAMFESTS, picnics, hiking, or while using your mobile rig in cross- band repeat mode, for quick access to a distant repeater. Be confident that your carrying the BEST amateur radio - you've got a STANDARD. STANDARD has exceptional RF features, incredible extended receive capabilities and solid transmitting performance.

Specifications

- Frequency Coverage: 100-180 MHz
  Receive: Approx: 340-400 MHz
  Transmit: Ham bands 400-480 MHz
- AM programmable for aircraft
- 60 memories + 2-VFO, 2-Call
- CTCSS 39 tones-Encode/Decode
- 22 menu selections
- RF squelch
- Freq steps, 5, 10, 12.5, 15, 20, 25, 30 and 50
- Scan types: Busy, Pause or Hold
  Scan: 1 MHz, Entire band, Program, Memory, Specific memory frequencies, Block and CTCSS
- PTT and Frequency lock
- Keyboard lock
- Tone burst: 1750 Hz
- APO: Auto Power Off
- Battery save: 4 steps
- Auto power off: adjustable
- Output power: 280 mW
- Operates from 3V "2-AA"
- Size approx: 2.28" W, 3.35" L, 0.98" D
- * Weight approx: 5.65 oz

VHF & UHF IN YOUR SHIRT POCKET!!

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TRUE PORTABILITY WITH TWO AA BATTERIES

EQUIPPED WITH BATTERY LOCK

60 FULLY PROGRAMMABLE MEMORIES

C108A

ACCESSORIES

- CHP111 Headset microphone
- CHP150 VOX microphone
- CLC502 Standard soft case
- CMP111 Speaker microphone
- CMP113 Tie pin microphone
- CMP115 Mini speaker microphone
- CMP123 Ear speaker/mic
- CNB401 NiCad battery pack
- CSA401A NiCad battery charger

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3 Bands...2, 70 cm, & 6 Meters!

One compact package!

What's the most compact, economical, full featured tri-band mobile? Standard's C5900DA! 6 Meters as well as 2 and 70 cm, with crossband repeat, remote operation with detachable front panel, or wireless remote control from your hand-held's DTMF pad! Plus 1200-9600 baud packet, priority hyper memories for your seven most used frequencies, and up- and down- load frequencies to the optional 200 channel extended memory chip - without a computer! And there's so much more - just review the specifications below...

Great in the car...

On the road in the RV...

Big signal in the Ham Shack!

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STANDARD C5900DA FEATURES

- Tested tough against intermod with Double Balanced Mixer (DBM) and Tracking Front-End
- DTMF remote control with HT
- Cross-band repeat, 6M, 2M and 70cm with CTCSS encode/decode
- Full Duplex cross-band operation with CTCSS encode/decode
- 7 priority hyper frequencies
- 1200-9600 packet interface
- Antenna Triplexer Built-in one antenna for all bands
- Dual-frequency display; left side 6M, 2M and 70cm, right side 2M and 70cm
- Frequency Receive Range:
  Left band 44.000 - 99.995 MHz
  100.000 - 225.000 MHz
  240.000 - 530.000 MHz
  Right band 100.000 - 200.000 MHz
  260.000 - 510.000 MHz
  550.000 - 1020.000 MHz*
  (both including AM aircraft)
- 45 Watts 6M, 50 Watts 2M and 35 Watts 70cm (3W Low, 10W Medium selectable) transmit ham-bands

*cellular blocked on 800 MHz band

OPTIONAL ACCESSORIES

- CAW590 split cable for mic
- CAW591 3M extension cable for LCD display
- CAW592 5M extension cable with connection for mic and speaker
- CAW593 8M extension cable with connection for mic and speaker
- CMB5900 mounting bracket for display
- CMU161 200 channel memory chip

Size: 5.51"W 1.57"H 6.81"D
Weight=2.65 lbs.

MEMORIES

- 80 memories (each side); stores frequency, offsets, CTCSS tones and more
- Expandable 200 memories each side with optional, CMU161
- CTCSS Encode\Decode standard
- Frequency steps, 5, 6.25, 10, 12.5, 15, 20, 25, 30, 50 and 100 kHz.
- Paging\Coded squelch
- DTMF autopatch dialing, 12 memories, 6 per side, 15 digits
- Eight kinds of scan: 1 MHz, entire band, program, memory, block memory, program memory, memory scan memory and tone

DISPLAY

- Snap-on front display or remote the radio in the trunk or under the front seat
- Back-lit Keypad and Display
- MY key, store favorite function
- TX Time-Out-Timer 3, 5, 15 mins
- Auto power-off 3, 6, 9 hrs
- Auto mute opposite band -20dB
- Beep-tone off, low or high
- Cooling fan built-in.

Mobile bracket and power cord (2M) included

MARS and CAP modification available permit required

FCC Approval pending

SR STANDARD®

For more information on this and other STANDARD products, please contact your nearest STANDARD dealer. Specifications, price and features are subject to change without obligation or notice. Standard Amateur Radio Products, Inc. P.O. Box 48480, Niles, Illinois 60714. Tel (312) 763-0081 Fax (312) 763-3377

ICOM HF/All Mode

IC-706

- HF + 6 M (100 W) SSB/CW/AM/FM/RTTY
- 2 M (10 W) SSB/CW/FM/RTTY
- All Modes
- Detachable Control Panel/Display
- SSB/CW/AM Narrow Filter Options
- 101 Alphanumeric Memories (99 Split)
- General Coverage Rx
- Noise Blanker • IF Shift
- Preamp/Attenuator • CW Keyer
- CW Pitch Control • Full Break-in (QSK)
- Speech Processor • VOX/XFC
- LCD Display with 1 Hz Readout
- Easy-to-use Scroll Menu System
- Voice Synthesizer Option (UT-102)
- Tone Encode Built-in
- 2 Antenna Connectors (HF/VHF)

Dimensions/Weight: 6.6"(W), 2.3"(H), 7.9"(D), 5.5 lb

IC-707

- HF (100 W) AM (25 W)
- All Modes
- General Coverage Rx
- Minimum Number of Keys
- Front Facing Speaker
- Large Display • Rugged Construction
- 100% Continuous Duty Cycle
- 32 Memory Channels

Dimensions/Weight: 9.5"(W), 3.7"(H), 9.4"(D), 9.1 lb

IC-728

- HF (100 W) AM (25 W)
- All Modes
- General Coverage Rx
- Triple Conversion Receiver
- Passband Tuning
- Speech Compressor
- 26 Memory Channels • Dual VFO's
- Direct Digital Synthesizer
- Microphone Included

Dimensions/Weight: 9.5"(W), 3.7"(H), 9.4"(D), 10.1 lb

NEW! IC-821H (2M/440 MHz Dual Band All Mode)

- Superior Satellite and Digital Communications!
- Continuous Adjustable Transmit Power
- Sub Band Transmit
- 9600 Full Compatibility out of the Box
- 160 Memories
- Noise Blanker & IF Shift on Main and Sub Bands (independent main/sub Rx)
- Built-in Electronic Keyer
- Compact Size

No-Code Techs!
Work the NEW AMSAT Phase 3-D Satellite!
(Due 5/97)

ICOM
THE NEXT GENERATION

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ICOM HF

IC-781

IC-781

- HF (150 W) AM (75 W)
- Multi Function CRT Display
- Dual Watch • Built-in Tuner
- Quad Conversion Receiver
- Twin Passband Tuning
- Built-in Power Supply
- 99 Memory Channels

Dimensions/Weight: 16.1" (W), 5.9" (H), 16.2" (D), 50.7 lb

IC-736/IC-738

IC-736/IC-738

IC-736:
- HF+6 M (100 W) AM (40 W)
- Internal Tuner (6 M also)

D/W: 13.0" (W), 4.4" (H), 11.2" (D), 23.1 lb

IC-738:
- HF (100 W) (AM 40 W)
- Internal Tuner

D/W: 13.0" (W), 4.4" (H), 11.2" (D), 19.0 lb

Both:
- New "I-Loop" DDS (1 Hz Res.)
- Internal Power Supply
- 100% Full Duty Cycle (2 Fans)
- PBT and Notch Filter
- Separate CW Jacks
- 101 Memories • RF Gain Control
- Auto Antenna Selector
- Quick Split Function (Pre-programmable)
- 4 Function Meter (PO/SWR/ALC/S)

IC-775DSP

IC-775DSP

- IF-DSP (Digital Signal Processing) Tx/Rx
- 200 W Stable Output Power (SSB/AM/FM/XCW/RTTY)
- Built-in Heavy Duty Power Supply
- Automatic IF Notch Filter
- Adjustable DSP Noise Reduction
- Level/Width Variable Noise Blanker
- PSN Modulation • Audio Peak Filter
- Dual Watch (2 Receivers)
- Twin Tuning Knobs • Twin Pass Band Tuning
- Power MOS FET's • CW Pitch Control
- Electronic & Memory Keyer

Dimensions/Weight: 16.7" (W), 5.9" (H), 15.4" (D), 36.8 lb

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ICOM

ICOM Mobiles

IC-2000H (2 M)

- Wide Band Rx (118–174 MHz)
- Highly Intermod Resistant
- 50 Watts of Power
- 50 Memory Channels with Alphanumeric Display
- Affordable Price

Dimensions/Weight: 5.9"(W), 2.0"(H), 5.9"(D), 2.4 lb

IC-281H (2 M)/IC-481H (440 MHz)

- IC-281H – 2 M (50 W) Tx/Rx, 440 MHz Rx
  IC-481 – 440 MHz (50 W) Tx/Rx, 2 M Rx
- 50 Watts of Power
- 70 Allocatable Memory Channels
- 10 Scratch Pad Memories
- Data Switch & Connector for 9600 bps Packet

Dimensions/Weight: 5.5"(W), 1.6"(H), 6.7"(D), 2.1 lb

IC-2350H (Dual Band)

- 2 M (45 W)/440 MHz (35 W)
- Ultra-High Speed Scanning
- 110 Channel Capacity Backed Up with EEPROM
- Wide Band Rx (118–174 MHz)

Dimensions/Weight: 5.5"(W), 1.6"(H), 8.1"(D), 2.6 lb

IC-2710H (Dual Band)

- 2 M (50 W)/440 MHz (35 W)
- Detachable Control Panel
- NEW Full Control, Easy to Use Mic (HM-98)
- High Speed Scanning
- 220 Memory Channels

Dimensions/Weight: 5.5"(W), 1.6"(H), 8.4"(D), 3.1 lb

IC-Δ100H (Tri Band)

- 2 M (50 W), 440 MHz (35 W), 1.2 GHz (10 W)
- 8 Different Combinations of 2 M, 440 MHz & 1.2 GHz Tx and Rx • 642 Memories
- Detachable Front Panel
- Full Remote Control Microphone

Dimensions/Weight: 5.5"(W), 2.0"(H), 7.7"(D), 4.5 lb

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ICOM Handhelds

IC-T22A (2 M)/IC-T42A (440 MHz)

- Fun, Shirt Pocket Small and Easy to Use!
- Large Alphanumeric Display
- 5 W @ 13.5 V (3 W Out of Box)
- Air Band Receive
- 80 Memory Channels (40 w/Alpha Display)

Dimensions/Weight: 2.3" (W), 4.3" (H), 1.1" (D), 10.9 oz.

IC-T7A (2 M/440 MHz Dual Band)

- Dual Bander at a Single Bander Size and Price!
- Easy! Works One Band at a Time
- 4 W (2M)/3 W (440) @ 13.5 V (3 W/1.6 Out of Box)
- No Function Key & "Intuitive" Help Function
- Encode/Decode

Dimensions/Weight: 2.5" (W), 4.8" (H), 1.1" (D), 11.3 oz.

IC-W31A (2 M/440 MHz Dual Band)

- 5W @ 13.5 V (3 W Out of Box)
- 100 Memories with Alphanumeric Display
- Alphanumeric Message & Paging
- Backlit Display and Keypad
- Wide Band Rx (Including Air Band)
- V/V, V/U, U/U Operation
- Encode/Decode

Dimensions/Weight: 2.2" (W), 4.9" (H), 1.2" (D), 12.0 oz

IC-Z1A (2 M/440 MHz Dual Band)

- 5W @ 13.5 V (3 W Out of the Box)
- Detachable Remote Control Speaker Mic with Full Functional Control & Dual Band Display
- Includes Nearly All IC-W31A Features!

D/W: 2.2" (W), 4.9" (H), 1.2" (D), 12.0 oz

IC-Δ1A (Tri Band)

- 2M (5 W), 440 MHz (5 W) & 1.2 GHz (1 W)
- Simultaneous Rx • Speaker Selection
- 3 Independent Displays
- Crossband Double Duplex
- Programmable Digital Squelch
- 78 Memory Channels

D/W: 2.3" (W), 5.7" (H), 1.9" (D), 1.4 lb.

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FREE LOG BOOK & OPC-581 SEPARATION CABLE

WITH IC-706 PURCHASE

Offer good from January 18, 1996 while supplies last.

THE IC-706 "BOTTOM LINE":

"One of the most exciting new products to come along in years, the IC-706 not only packages 160 through 2 meters in a little box but manages to squeeze in plenty of features, including a speech processor and keyer."

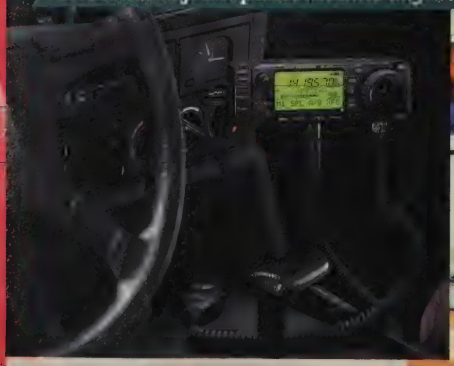
— *QST*, March, 1996

Exclusive FREE Logbook/OPC-581 Offer! Simply mail your completed IC-706 warranty card and a copy of your sales receipt to: ICOM America, FREE Logbook/OPC-581 Offer, Attn: Susan Adamson, 2380 116th Ave. NE, Bellevue, WA 98004.

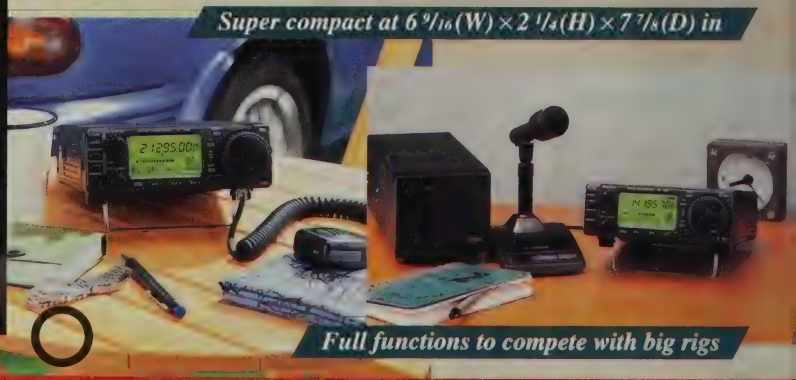
- Powerful 100 W from HF to 50 MHz and 10 W for 144 MHz
- 101 memory channels with dotmatrix display
- All mode including SSB, CW, RTTY, AM and FM.

The front panel photo is **Actual size.**

Detachable front panel mounts any where.



Super compact at 6 9/16(W) × 2 1/4(H) × 7 7/8(D) in



Full functions to compete with big rigs

Visit your ICOM dealer or call ICOM's brochure hotline: (206) 450-6088.

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ICOM ON WHAT'S BEYOND

THE SECRET IS OUT!

Advanced Audio at a Very Affordable Price

We couldn't keep it a secret any longer! ICOM's taken its acclaimed Next Generation technology and applied it to the world of receivers! The all new IC-R8500 features many updates of the same performance found in its renowned big brother, the IC-R9000, yet it comes at a fraction of the price!

IF Shift and APF!

Signals come in loud & clear! An IF-Shift function rejects nearby interfering signals in SSB modes. An APF (audio peak filter) provides tone control when in FM and boosts specific frequencies when in CW. And to continue keeping signals coming in loud & clear, an AFC (auto frequency control) compensates for any FM, FM-N and WFM station frequency drift.

Extra-Wide Coverage! All Modes!

Cover frequencies from 100 kHz to 1,999.99 MHz* using 10 Hz tuning steps. You'll receive SSB (USB, LSB), AM (Normal, Narrow, Wide), FM (Narrow, Normal), WFM, and CW!

Built-in Hardware for the Next Generation

The IC-R8500 is designed to grow along with your communication needs. Built right in is the famous ICOM-developed CI-V computer control interface and an industry standard RS-232C port. This allows for advanced software control and for the programming of up to 800 memory channels (20 banks of 40 channels), straight off of a PC.

Come to Dayton '96 and experience the IC-R8500's superior sound. With so many new & advanced capabilities, we couldn't keep this receiver a secret for long.

Other IC-R8500 Features:

- High Stability (<30 MHz: ±100 Hz, V/UHF: ±3 ppm)
- 1000 Memory Scans: 20 Banks of 40 Channels, 100 Skip Scans, 100 Auto Write Memory Scans
- Selectable AGC Time Constant
- S-Meter Squelch (in addition to ordinary noise squelch)
- Noise Blanker (SSB/AM)
- 3 Antenna Connectors
- 12 VDC/120 VAC

ICOM'S ON THE WEB!
http://www.icomamerica.com/icom

SEE THE IC-R8500 AT DAYTON '96

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ICOM

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MICROPHONES • HEADSETS • ACCESSORIES

HEIL PRO-SET

Boomset Headphones

A rugged, lightweight boomset designed for long wearing time during contests, etc. The headband has detents on each side for adjustment, and is fully padded for comfort. The vinyl earpads are also heavily padded, seal out noise, and are removable for washing. The flexible microphone boom adjusts to about any location and folds up for storage. Specify HEIL HC-4 or HC-5 mic cartridge (below).....$131.00

AD-1 Adapter Cables (D) for use with ICOM, KENWOOD or YAESU transceivers .....$14.99 ea.

HEIL PRO-MICRO

Boomset Headphones

The Pro Micro is the newest additional to the Heil Pro line. It replaces the old BM-10 and BM-5 series headsets. It is simply a miniature version of the Pro Set. It's main feature besides being smaller and lighter weight is that it does not cover the entire ear. Hams want to hear their surroundings. Using the Heil Pro-Micro you can do just that. Available with the HC-4 or HC-5 element (below) $105.00

AD-1 Adapter cables (D) for use with ICOM, KENWOOD or YAESU transceivers.....$14.99 ea.

PRO 5 (A) To answer the concern of not covering both ears, the Pro 5 was created. Provides all of the same quality and performance as the Pro Set with out covering the right ear. Available with either the HC-4 or HC-5 element (below). Use AD-1 adapter (above), specify HC-4 or HC-5 $120.00

HM-10 MICROPHONE (B) Hand-held studio-style microphone with desk stand or boom mount options. Choice of HEIL cartridges. Operate PTT or VOX, it's designed to work with virtually any late model transceiver. When ordering specify HC-4 or HC-5 cartridge (below)..... $63.96

HM-10 DUAL (C) Amateur Radio's *ultimate* microphone. Versatile in that it has *both* HC-4 DX element and HC-5 Full Range microphone cartridges built-in – and switch selectable for varying conditions..... $112.96

HM-10 CABLES *(not pictured)* Designed to work with any transmitter. When ordering specify your radio and the HM-10 will be shipped with the correct color coded cables. Specify for ICOM (HEI CC1I), KENWOOD (HEI CC1K) or YAESU (HEI CC1Y), ... $25.99

TB-1 TABLE BASE (E) For HM-10 series microphones. 6 inches high, heavy (2 lb., 10 oz) cast metal base with non-skid cork feet. $19.95

MA-1 BOOM AND CLAMP ASSEMBLY (F) For HM-10 series microphones. The boom is adjustable from 6 to 24 inches and attaches to desk or shelf, or hangs from ceiling. Swivels a full 360° and places HM-10 or DUAL TEN microphone exactly where you want it. You can use the FS-1 footswitch for convenient, hands-free PTT operation..... $49.99

FS-1 FOOT SWITCH (G) Provides convenient foot-control of PTT function of any transmitter. Non-skid rubber pad on both top and bottom, supplied with 7 ft. cable and ¼" phone plug. $26.95

HEIL MICROPHONE CARTRIDGES

Most communications microphones today were designed for public address – not for SSB, with the frequency response needed for getting through pile-ups, or providing maximum voice clarity. If you aren't satisfied with the *"sound of your station"*, you can solve this problem by replacing the cartridge in your microphone with a ***HEIL KEY ELEMENT*** for a dramatic improvement. It's tiny in size, and easily replaces existing cartridges in most microphones.

HC-4 – *The DX Dream Machine*

The replacement microphone cartridge for Contest and DX operators. It's engineered with a high-pitched, pile-up busting frequency response of 500Hz to 3800Hz with a 10dB peak at 2000Hz, and a sharp 12dB per octave roll off at 500Hz. Provides your rig with excellent clarity and more punch for getting through the pile-ups. Impedance: 2kΩ @ 1000Hz – works well into low (500-600Ω) and medium (2k-5kΩ) inputs. Cardioid pattern. Size: 0.530"d x 0.850"w x 0.310"h $29.95

HC-5 – *The Key Element*

The replacement microphone cartridge for everyday Rag Chewing. Engineered with full range articulation and maximum voice clarity. Not mushy, bassy paging-type audio, but very clear, easy-to-understand SSB audio. Response: 350Hz to 4000Hz. with a sharp roll-off under 300Hz and above 3100Hz with a peak at 2100Hz. Impedance: 2kΩ @ 1000Hz – works well into low (500-600Ω) and medium (2k-5kΩ) inputs. Cardioid pattern. Size: 0.530"d x 0.850"w x 0.310"h..... $29.95

Bob Heil, K9EID ... *he should write a Book!*

Bob Heil, K9EID, is the founder and President of Heil Sound, Ltd. manufacturer of professional audio equipment for the entertainment industry. Since 1956, he has been one of the pioneers of VHF SSB, state of the art repeater systems and 10 meter FM. He has authored hundreds of rticles and four textbooks in the field of audio and amateur radio. ob was awarded the 1982 "Radio Amateur of the Year Award" at e Dayton Hamvention and spends much of his time lecturing to ound engineers, at radio clubs and conventions. In 1995 at the udio Engineers Society Convention he received a performance ward from Live Sound International for his advancement of techology in the sound field. A professional theatre pipe organist for 5 years, he also has recorded albums and written a textbook on rgan registration.

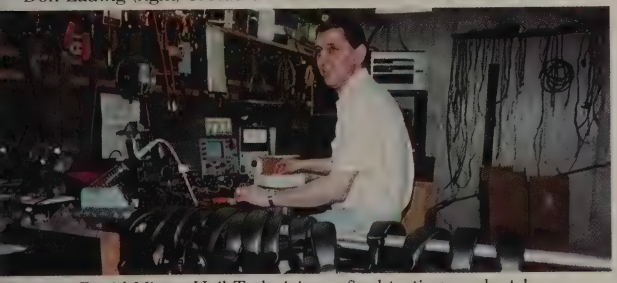
t SuperFest '96, Bob told us how his Ham Radio hobby launched n entire career for him. He related that in the early 1960's most mplifiers used by musicians consisted of the usual transformer, a 5U4 rectifier, a pair of 6L6 output tubes and the same components Bob was working with when he was fixing his own Ham rig. Bob figured he could fix these amps, so he did, and the word got out. These musicians, with their Fender amplifiers, who's names included the likes of Jerry Garcia (The Grateful Dead), Peter Townshend, (The Who), Peter Frampton and others found their way to Bob's door.

As music evolved in to heavier Rock, better equipment was needed and Bob was asked to make improvements and even invent devices to alter the sound. The "Talk Box", premiered by fellow ham Joe Walsh, WA6AGU and used by others like Peter Frampton, and Stevie Wonder to personalize their performances, was one of Bob's most notable inventions.

Eventually, Bob toured with the Grateful Dead as their sound man, a gig that lasted two years. Later, he toured for 10 years with the The Who and 5 years with Humble Pie, in the same capacity.

From his beginnings as a Technician Class ham in the mid-50's, Bob has evolved to one of the leading authorities on Sound, Organs, Home Theatre and Satellite Systems. The accessories for Ham radio that are manufactured by his company, Heil Sound, have contributed greatly to the quality of signals on the ham bands and the ability to copy them as well. As you can imagine, Bob has many stories to tell and that is why we say: ***He should Write a Book!***

Don Ladwig (right) of Audio Plus checks out Bob's Home Theatre



David Mines, Heil Technician – final testing products!

Bob at the 1995 Dayton Hamvention with a new 9-year-old ham, Donna Cawvey and Todd McCandless (left), Heil's Director of Operations.

Here's Bob during a two-year stint with Dolly Parton in 1968.

Bob, you were never that young, were you?

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Advanced technology moves Kenwood's HF rigs to the top.

TS-450SAT/S • TS-690S

- 160m to 10m amateur band operation, 500kHz to 30MHz general coverage receiver • 6m amateur band and 50-54MHz general coverage receiver (TS-690S)
- DDS (Direct Digital Synthesizer) & digital PLL system
- AIP (Advanced Intercept Point) system
- Automatic antenna tuner (built-in or optional)
- IF shift function tuning • AF notch filter
- Heavy duty cycle design • 100 memory channels

TS-850SAT/S

- 160m to 10m amateur band operation, 100kHz to 30MHz general coverage receiver • DDS (Direct Digital Synthesizer) & digital PLL system • AIP (Advanced Intercept Point) system
- Automatic antenna tuner (built-in or optional)
- IF slope tuning • IF notch filter
- Electronic message keyer circuit with weighing control
- 100 memory channels • Digital recording system (optional)

TS-950SDX

- 160m to 10m amateur band operation, 100kHz to 30MHz general coverage receiver
- Built-in DSP (Digital Signal Processor)
- MOS-type FET final section • Dual frequency receive
- 150W PEP output (SSB/CW/FSK/FM)
- DDS (Direct Digital Synthesizer) • Menu system
- AIP (Advanced Intercept Point) system
- Automatic antenna tuner • IF slope tuning • IF notch filter
- 100 memory channels • Built-in AC power supply

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AMATEUR RADIO PRODUCTS GROUP
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Customer support@kcomm.com (310) 639-5300
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KENWOOD

94ARD-1049

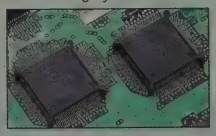
HF TREASURE

Intelligent Digital Enhanced Communications System

FREE Radio Control Program Software Included!

State-Of-The-Art IF-Stage DSP

Once again Kenwood defines the standard with next generation DSP. Utilizing dual digital signal processing chips, the TS-870S captures wave forms at the IF stage (including AGC circuit) in realtime to provide unmatched clarity, noise reduction and control over inbound or outbound signals. The DSP chips deliver a dynamic range of 144dB, enabling you to detect previously unheard signals and customize the filtering system through the menu interface. No other transceiver on the market gives you this much power and flexibility.



Digital Filters

Applying complex algorithms at the IF stage allows you to attain filtering that is unattainable with conventional analog circuits. For instance, you can shape the filter sharp enough to obtain over 100dB out of pass band attenuation with virtually no signal loss. Through the menu-driven interface on the front panel, you can apply standard filters or customize and store them for rapid and convenient access. And because it's all digital, there is no additional cost of optional filters!

Two Noise Reduction Methods

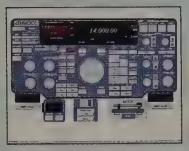
Choose from 2 methods of noise reduction: Line Enhancer Method (LEM) or Speech Processing/ Auto Correlation (SPAC). LEM allows you to custom-shape a filter curve around a target signal, essentially 'carving' it out of the background noise — a powerful tool in SSB operation. For tough CW conditions use the SPAC function, which employs a statistical correlation algorithm to pull weak signals out of the background.

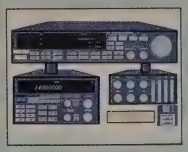
IF Digital Auto-Notch

Another benefit of IF-stage DSP is the ability to detect and eliminate broadcast carrier and continuous beat signals far more effectively than analog systems. It automatically tracks beat signal changes so you can 'set it and forget it'.

57.6 Kbps Computer Control

High speed computer control is available through a built-in RS-232C port and supplied Windows-compatible software called RCP (Radio Control Program). This enables access to most functions of the TS-870S including on/off, frequencies, bands, modes and more. It's also possible to "create" a customized screen radio, based on an original design or the included templates.





Built-In K1 LogiKey Keyer

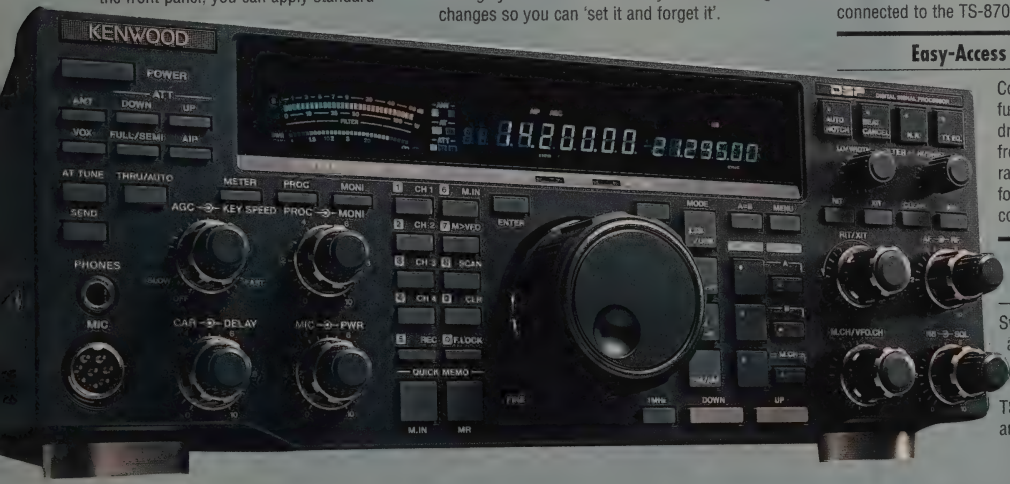
Sophisticated CW operation is possible with the built-in K1 LogiKey electronic keyer with full or semi break-in, DSP-adjustable rise/fall times, and side tone monitor. A second keyer may also be connected to the TS-870S.

Easy-Access Menu System

Control all of the rig's functions through the menu-driven user interface on the front panel. It also incorporates a Quick Menu feature for rapid access to your most commonly used functions.

Dual Antenna and RX Out

Switch between 2 separate antenna systems from the front panel, plus attach an external receiver to the TS-870S for maximum antenna utilization.



Other Features

▮ Beat cancel ▮ Variable AGC ▮ Selectable voice equalizer (SSB & AM) ▮ Speech processor ▮ Selectable transmit equalizer ▮ 100 watts output on SSB, CW, FSK; 25 watts on AM ▮ 100 kHz - 30 MHz general coverage receiver ▮ Built-in automatic antenna tuner (TX & RX) ▮ Dual VFO with 100 channel memories plus 5 channel quick memory ▮ Full band scan, programmable band scan, group scan, memory scan with memory channel lock-out ▮ Built-in tone encoder ▮ High-quality 60-second digital recording unit option (DRU-3) ▮ Voice Synthesizer unit option (VS-2) ▮ Modifiable for MARS/CAP*

*Permits required for MARS and CAP use. Specifications guaranteed for Amateur bands only. Kenwood follows a policy of continuous advancement in development. For this reason, specifications may be changed without notice.

TS-870S

HF TRANSCEIVER

ISO 9002
Meets ISO Manufacturing Quality System

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96ARD-1369

Advanced HF Operating with Next Generation

The TS-870S HF Transceiver incorporates a quantum leap in communications technology: IF-stage digital signal processing. This development gives you unprecedented control over receiver and transmitter performance, allowing you to detect signals that would be simply impossible to find with analog means, and providing you with an extensive 'tool kit' to mold and shape the quality of your voice transmission.

When you couple this DSP 'tool kit' with a full range of features such as 100-channel

HF TRANSCEIVER
TS-870S

Large S-meter/multi-scale display *shows S-meter readings and width/shift of pass band in receive; in transmit it serves as a calibrated power, ALC, SWR, and speech processor compression meter*

4 user-programmable key *allow for customized control of any function*

Multi-purpose numeric keypad

4-stage attenuator *(OFF/6dB/12dB/18dB)*

A/B antenna selector *(with band memory)*

Auto antenna tuner *is operational on both transmit and receive*

KENWOOD SINCE 1946 50th ANNIVERSARY

ISO 9002 Meets ISO Manufacturing Quality System

K1 LogiKey electronic keyer *is versatile and responds to your commands.*

100 watts output *on SSB/FM/CW/FSK; 25 watts on AM*

Quick memory *gives five channels for on-the-fly frequency control; **M.IN** stores data, **MR** recalls it*

KENWOOD

age DSP

memory, built-in keyer, interactive menu function, automatic antenna tuner, and 100-watt output, just to name a few, the TS-870S becomes much more than just another HF rig — it is a radio that gives you strategic advantage.

Digital Signal Processing functions — *Auto-Notch, Beat Cancel, Noise Reduction, and Transmit Equalizer — are activated at the touch of a button*

Multi-function, alpha-numeric sub-display

VFO A/B/M.CH keys *allow versatile split-frequency operation*

Noise blanker *cuts pulse-type noise*

The back panel has a host of connectors: antenna 1 & 2 (UHF-type), RTTY (RCA pin jack), high-speed PC control (D-SUB 9-pin), HF packet (13-pin DIN), external antenna tuner (6-pin), external linear amp control (7-pin DIN), dual CW keys, external speaker (miniplug), station monitor connector (8.83 MHz; RCA pin jack), and an external receiver antenna connection (RCA pin jack).

MENU CONFIGURATION

MENU	GROUP	FUNCTION
00	ETC	Menu A/B selection
01	AGC	AGC auto/manual
02	AGC	AGC release time (SSB)
03	AGC	AGC release time (CW)
04	AGC	AGC release time (FSK)
05	AGC	AGC release time (AM)
06	AGC	Receive audio AGC release time (FM/AM)
07	AGC	Receive audio AGC gain (FM/AM)
08	AT	Receive-mode antenna tuner (On/Off)
09	Display	Meter peak hold (On/Off)
10	Display	Δ Frequency display (On/Off)
11	Display	S-meter correction for AIP
12	Display	FM mode S-meter scale
13	DSP	Line Enhancer (On/Off)
14	DSP	Tracking speed (Line Enhancer)
15	DSP	SPAC correlation time
16	DSP	Beat Cancel response time
17	DSP	Auto-Notch response time
18	DSP	Filter tracking (On/Off)
19	DSP	Packet filter bandwidth
20	DSP	Packet in level
21	DSP	Packet out level
22	AGC	Mic AGC release time
23	CW	CW rise/decay time
24	CW	CW pitch/side-tone frequency
25	DSP	Speech processor low-frequency characteristics
26	DSP	Speech processor high-frequency characteristics
27	TX	Transmit inhibit (On/Off)
28	TX	VOX gain
29	TX	Transmit filter bandwidth (SSB/FM)
30	TX	Transmit filter band shift (SSB/FM)
31	TX	Transmit equalizer type (SSB)
32	ETC	Antenna tuner operation mode
33	ETC	Allowable SWR (Antenna tuner)
34	ETC	Auto mode (On/Off)
35	Buzzer	Beep/alarm (On/Off)
36	Buzzer	Beep mode (On/Off)
37	Buzzer	Warning beep (On/Off)
38	Buzzer	Beep level
39	DRU	Voice playback repeat (On/Off)
40	DRU	Voice playback repeat time
41	Encoder	Fine step value
42	Encoder	BC band 9kHz step (On/Off)
43	Encoder	Channel step
44	Encoder	Step adjust
45	PF	Programmable Function key (upper-left)
46	PF	Programmable Function key (upper-right)
47	PF	Programmable Function key (lower-left)
48	PF	Programmable Function key (lower-right)
49	ETC	Channel shift
50	ETC	Dimmer level
51	ETC	Control relay response time
52	ETC	1MHz/500kHz/100kHz step select
53	ETC	External RX antenna connector (On/Off)
54	ETC	Data transfer function (On/Off)
55	ETC	Data transfer mode: VFO direct (On/Off)
56	ETC	Computer interface baud rate (bps)
57	FM	FM subaudible tone frequency
58	FM	FM subaudible tone mode
59	FM	FM bass boost (On/Off)
60	FM	FM wide mode (On/Off)
61	FM	FM mic gain
62	FSK	FSK shift width (170/200/425/800 Hz)
63	FSK	FSK mark polarity
64	FSK	FSK high/low tone (1275/2125 Hz)
65	Scan	Programmable scan hold (On/Off)
66	Scan	Group scan (On/Off)
67	Scan	Busy-stop memory scan (On/Off)
68	Scan	Carrier-operated scan resume (On/Off)

Mini-Mobility Super Simplicity

Powerful Portability

Kenwood's popular TS-50S is an extra-compact HF transceiver that's perfectly sized for mounting in a vehicle or taking on a DXpedition. Yet it's powerful too, offering spectacular TX/RX performance that's on a par with the big rigs. Maximum RF output is 100 watts (25W on AM), and all modes — LSB, USB, CW, AM and FM — are supported. The new ultra-light PS-40 compact switching power supply (option) is great for travel.

Intuitive Menu System

When time's at a premium, the user-friendly menu system allows you to rapidly adjust just about any setting with a minimum of fuss. The menus are also accessible via the supplied microphone.

Operating ease is further enhanced by 100 memory channels and extensive scan functions.

DDS with Fuzzy Logic Control

The fuzzy logic control circuitry allows for slow or fast tuning of the band.

AIP (Advanced Intercept Point)

Kenwood's renowned AIP system raises dynamic range to 105dB, giving the TS-50S first-class receiver performance.

TS-50S
HF TRANSCEIVER

Other Features

- RF output power control (100W, 50W, 10W)
- Large LCD panel with digital bar meter
- Auto-mode capability
- Dual VFOs (A and B)
- TF-SET
- Carrier-operated scan stop mode
- Switchable AGC circuit (SLOW/FAST)
- All-mode squelch
- CW reverse mode
- 20dB attenuator
- IF shift
- Noise blanker
- Multi-function microphone supplied
- Optional YK-107C 500Hz CW filter
- Optional AT-50 external antenna tuner
- Optional PS-40 switching power supply
- Optional TC-50 travel case

TS-60S
50 MHz ALL-MODE TRANSCEIVER

6-Meter All-Mode Performance

Confidently holding its own against much larger rigs is the TS-60S 50MHz all-mode transceiver. Thanks to a pair of MRF492 final transistors, it delivers an impressive 90 watts in SSB, CW and FM modes (23W in AM).

First-Rate Interference Reduction

In addition to Kenwood's AIP circuitry, the TS-60S is equipped with IF shift (SSB & CW), a 20dB attenuator, CW reverse mode, and a pulse noise blanker. A 500Hz CW filter is optional.

100 Memory Channels

The TS-60S may be small in size but it's big on memory: 100 channels store transmit and receive parameters such as frequency, mode, and filter settings. Memory shift transfers data directly to the VFOs.

Multi-Function Microphone

The supplied MC-47 remote-control microphone has 4 programmable function keys that provide rapid access to chosen menu functions — perfect for mobile operation.

Other Features

- DDS (Direct Digital Synthesizer) with fuzzy logic control
- Large LCD panel with digital bar meter
- Auto-mode capability
- Dual VFOs (A&B)
- Dual-menu system
- All-mode squelch
- Switchable AGC circuit (SLOW/FAST)
- Full break-in and semi break-in
- TF-SET
- TO and CO scan stop modes
- Relay & ext. ALC terminals
- 3-position RF output power control
- Dimmer control
- Auto power-off
- Optional PS-40 switching power supply
- Optional TC-50 travel case

ISO 9002
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96ARD-1413

REV It Up On 2 Meters

NEW!

61+1 (Call) Multi-Function Memory Channels

For quick access, essential data – transmit and receive frequencies, frequency step, tone frequency, etc.– can be stored in the 62 memory channels. All channels can store transmit and receive frequencies independently for odd split repeaters.

Memory Name (MN) Function

All 62 channels can be identified alphanumerically (max. 6 characters) instead of by frequency. This is particularly convenient for repeaters and club channels. It is also possible to switch to a channel number display.

DTSS Selective Calling

Built-in DTSS (Dual-Tone Squelch System) allows DTMF access: the squelch is opened only when a specific 3-digit code has been received. Using the wildcard asterisk, group calling is also possible.

High RF Output

The TM-261A (144MHz) and TM-461A (440MHz) put out an impressive 50 watts and 35 watts, respectively. Both models also have mid- and low-power settings.

Multi-Function Microphone with Backlit Keys

The supplied multi-function microphone has backlit keys to facilitate operation in low-light situations.

Built-In CTCSS Tone Encoder and Optional Decoder

The optional decoder enables the setting of different tones for transmit and receive.

Multi-Scan Capability

Choose from several scan modes: full band scan, programmable band scan, call scan, and memory scan with programmable memory channel lockout. There are also 2 scan stop modes: TO(time-operated) and CO (carrier-operated).

Improved Intermodulation Rejection

The TM-261A also exhibits superior adjacent channel noise rejection.

Meets MIL-STD Requirements

Strict MIL-STD environmental standards for vibration (MIL-STD-810C) and physical shock (MIL-STD-810D) are fully complied with.

DTMF Memory Function

Up to ten 15-digit DTMF codes with ID can be stored for auto-dial and telephone autopatch use. Redial is also provided.

Dual Menu System

Two menu modes – A and B – offer full control over such settings as frequency step and the time-out timer, when required.

Other Features

- Built-in CTCSS encoder and optional KQT-8 decoder
- Tone scan
- Repeater reverse switch
- Lock function
- Time-out timer
- Auto repeater offset (TM-261A)
- Busy channel lockout
- Auto power-off
- Wireless cloning function

KENWOOD SINCE 1946 50th ANNIVERSARY

TM-261A

2 METER MOBILE

ISO 9002 Meets ISO Manufacturing Quality System

* Permits required for MARS and CAP use. Specifications guaranteed for Amateur bands only.
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96ARD-1417

Proven Winner

144MHz Single-Band Operation

The smooth styling of Kenwood's TM-241A FM mobile transceiver — compact and easy to install — is complemented by rugged construction and up to 50 watts of RF power to get you through in adverse conditions. Reception performance is also first-class: intermodulation characteristics have been improved to cope with very strong signals.

Military Specifications*

To ensure that it can withstand the toughest assignments, the TM-241A has been engineered to meet US military standards 810C, 810D & 810E for shock and vibration resistance (*current K/K2 versions with serial #5080000 or later).

User-Friendly Design

The ergonomically designed control panel is easy to see as well as to operate: it features illuminated keys and an extra-large LCD with 4-step dimmer to suit various lighting conditions.

NEW! Backlit Microphone Model Now Available

New Microphone with Backlit Keys

A new, large backlit keypad offers extra convenience for frequency entry and autopatch telephone operation.

20 Multi-Function Memory Channels Plus Call Channel

Mobile operating convenience is enhanced by 20 memory channels for storing frequency, CTCSS tones and on/off status, and REV data. Of these, 4 channels store transmit and receive frequencies independently for odd split repeaters.

Multi-Scan Capability

Choose from several scan modes: full band scan, programmable band scan, and memory scan with memory channel lock-out. In addition to two scan stop modes — Time Operated and Carrier Operated— there is an intermittent priority alert scan.

Tone Alert System with Elapsed Time Indicator

When activated, this sounds for ten seconds and displays a bell symbol to alert you to an incoming signal. Both elapsed time and the number of calls are displayed.

Other Features

- Built-in CTCSS encoder and optional KQT-8 decoder
- Auto repeater offset
- Repeater reverse switch
- DTSS for selective calling and page (with optional DTU-2)
- Time-out timer
- Auto power-off with warning beeper
- Modifiable for MARS/CAP*

TM-241A

2 METER MOBILE

ISO 9002
Meets ISO Manufacturing Quality System

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96ARD-1415

Best Dual-Banders on Wheels

144MHz/440MHz Dual-Band Operation

Kenwood's TM-733A is a versatile FM dual-bander with the sophistication and power (144MHz: 50W & 440MHz: 35W) for high-performance mobile communications. As well as receiving simultaneously on VHF and UHF bands, it can receive two frequencies on the same band.

Six-In-One Programmable Memory

Six entire operating profiles — including everything from frequency range to dimmer level — can be stored in programmable memory for recall at the press of a button. It's like having six transceivers in one. Each operator or family member can set up their own profile.

Data Connector for 1200/9600 bps Packet

Using the 6-pin mini DIN connector on the front panel, you can easily hook up a TNC to the TM-733A for either 1200 or 9600 bps packet communications.

1200 9600bps packet compatible

Theft-Deterrent Features

As an anti-theft measure you can remove the front panel whenever the car is left unattended. If the optional quick-release kit is used, the panel can be mounted virtually anywhere in the vehicle because the microphone cable connects directly to the main unit.

New Microphone with Backlit Keys

A new, large backlit keypad offers extra convenience for frequency entry and autopatch telephone operation.

Other Features

- 72 multi-function memory channels
- AIP (Advanced Intercept Point)
- Built-in DTSS with page
- Cross-band repeater
- Wireless clone function
- Wireless remote function
- Auto simplex checker
- Built-in CTCSS encoder & optional TSU-8 decoder
- Key function display
- Modifiable for MARS/CAP*

*Permits required for MARS and CAP use. Specifications guaranteed for Amateur bands only.

TM-733A

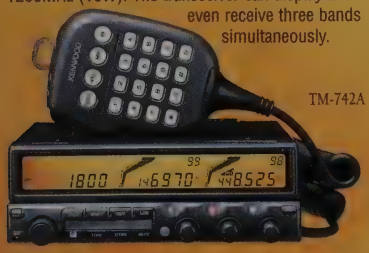
FM DUAL BANDER

Theft Deterrent Faceplate

NEW! Backlit Microphone and Duplexer Model Now Available

144MHz/440MHz & 144MHz/220MHz Operation

The TM-742A (144MHz: 50W & 440MHz: 35W) and TM-642A (144MHz: 50W & 220MHz: 25W) dual-band mobile transceivers can be converted into tri-banders with the addition of an optional FM band unit: 28MHz (50W), 50MHz (50W), 220MHz (25W; TM-742A only), 440MHz (35W; TM-642A only), or 1200MHz (10W). The transceiver can display and even receive three bands simultaneously.



TM-742A

101 Memory Channels

For each band, there are 100 memory channels plus 1 call channel. Each channel can store transmit and receive frequencies independently for odd split repeaters.

Separate Control & Display Units

The display and controls can be mounted separately — on either side of the steering wheel, for example — using the optional DFK-3 kit.

TM-642A

New Microphone with Backlit Keys

The supplied microphone has backlit keys for added convenience during autopatch operation or frequency entry.

TM-742A/642A

FM DUAL BANDER

NEW! Backlit Microphone Model Now Available

ISO 9002 Meets ISO Manufacturing Quality System

Other Features

- Built-in DTSS selective calling with page
- Independent SQL & VOL controls for each band
- Built-in CTCSS encoder & optional TSU-7 decoder
- Wireless remote control function
- High-visibility illuminated panel keys
- Wide-band VHF/UHF receive coverage (including Air Band)
- Date & time display, stopwatch, alarm, on/of timer
- Cross-band repeater function
- Modifiable for MARS/CAP*

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96ARD-1409

Light Sensation

User-friendly operation

Fingertip convenience. Both the TH-22AT (144 MHz) and TH-42AT (440 MHz) feature an easy-to-use menu system with programming and simple operation for the new operator as well as the veteran.

Compact rugged design

Measuring just 2-3/16 x 4-5/8 x 1" (56 x 117 x 25mm), these transceivers are so small and slim that they can easily slip into your shirt pocket. The TH-22AT/TH-42AT are remarkably light, yet reassuringly built tough.

Efficient MOS FET power module

The FET power module generates high output power (5 watts with only 9.6 V input) from a PB-34 battery, providing many additional hours of enjoyment. The supplied 6 V PB-32 battery pack provides up to 3 watts (TH-22AT) or 2.5 watts (TH-42AT).

Direct DC - in terminal

Power source versatility goes a step further: you can remove the battery power source completely and use a direct DC (5.0 V~16.0 V) source from your car or home using the PG-3H filtered cigarette lighter cord or the PG-2W DC cable for a full 5 watts (9.6 V~16.0 V) of power.

Great receive audio output

In the famous Kenwood tradition, the 1-7/16" speaker offers outstandingly clear audio quality.

40 non-volatile memory channels + 1 call channel

All 41 memory channels can independently store essential data—transmit and receive frequencies, frequency step, tone (CTCSS) frequency, tone on/off, CTCSS on/off, DTSS code, DTSS on/off, shift reverse on/off—all in a non-volatile E2PROM. There's no need for a lithium battery backup.

Luminescent DTMF keypad

The DTMF keypad enables direct frequency entry (in VFO mode) and direct recall of memory channels (in MR mode). The DTMF memory function allows storage of up to (5) commonly used auto-dial telephone numbers for autopatch use. The luminescent keypad helps increase operating convenience while no additional battery drain is required.

TH-22AT

NEW 5 Watt TH-22AT Model Available

TH-22ATK2 version

If you prefer to custom tailor your own TH-22AT, you can choose the low-cost TH-22ATK2. You now have 8 different power and charging options including (3) NiCad battery options (PB-32, PB-33, PB-34), an AA alkaline battery pack (BT-9), or start with just the PG-2W power cord for DC power input.

Other Features

- DTSS & page
- DTMF memory (5 x 15-digit codes) & transmit hold
- Multiple scan & scan stop modes
- Busy channel lock-out
- Tone alert with elapsed time indicator
- Selectable squelch configuration
- Key lock
- Time-out timer (30, 60, 90, 180, 900 sec.)
- Auto battery-saver circuit
- LCD with 2 backlight modes (on demand or continuous)
- 3-level RF output power control
- Built-in CTCSS encoder and optional decoder
- Auto power-off
- Auto repeater offset (TH-22AT)
- Battery voltage indicator
- Modifiable for MARS/CAP*

TH-42AT

*Permits required for MARS/CAP use. Specifications guaranteed for Amateur bands only. Kenwood follows a policy of continuous advancement in development. For this reason specifications may be changed without notice.

TH-22AT/42AT

FM HANDHELD TRANSCEIVER

ISO 9002
Meets ISO Manufacturing Quality System

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96ARD-1411

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Smart Dual-Bander

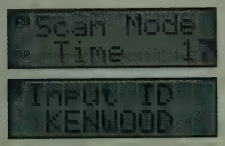
NEW 5 Watt TH-79A(D)H Also Available

144MHz/440MHz Dual-Band Operation

Ultra compact, lightweight in design, this smart FM dual-bander offers a superb combination of operating ease and powerful performance for handheld communications. As well as providing single-band operation, the TH-79A(D) features extensive dual-band functions, including full-duplex operation and the ability to receive two frequencies simultaneously, even on the same band. And for especially demanding applications, a high-power version — the TH-79A(D)H — is also available.

Dot-Matrix LCD & Menu System

In addition to frequency data, the easy-to-read dot-matrix LCD, a Kenwood exclusive, offers access to a menu system with full alphanumeric display of functions and settings. You can also scroll through a summary of your current operational status.



82 Non-Volatile Memory Channels with ID

The memory channels are all capable of storing transmit and receive frequencies independently—thus allowing split-frequency operations — and an alphanumeric ID can be used to identify each one.

Guide Function

There's no need to carry a manual with you: the dot-matrix LCD provides access to a handy guide function that displays simple to understand operating instructions at the touch of a button.

Wide-Range Flexible Antenna

A high-performance flexible antenna ensures excellent reception over the TH-79A(D)s extended RX range — including Air Band, weather channel and other service frequencies.

DTMF Keypad with DTMF Memory

The built-in DTMF keypad enables direct frequency entry and direct recall of memory channels. Up to ten 15-digit DTMF codes with alphanumeric ID can be stored for telephone autopatch use.

Wireless Clone Function

If you're operating two or more transceivers, the ultimate time-saver is the TH-79A(D)s cloning function. Essential data is transferred rapidly, without needing a cable.

Other Features

- Efficient FET power module
- Automatic Band Change
- Full band scan, programmable band scan, memory scan with memory channel lock-out
- TO & CO scan stop modes
- DTSS with page and answer-back function
- Power-on call sign display
- Built-in CTCSS tone encoder/decoder
- Tone alert system with elapsed time indicator
- Cross-band repeater function
- Auto repeater offset (VHF)
- Can use as a remote controller for TM-733A/742A/642A/942A
- Lock functions
- 3-position output power control (High, Low, Economy Low)
- Auto power-off and battery save function
- Modifiable for MARS/CAP*

*Permits required for MARS and CAP use. Specifications guaranteed for Amateur bands only. Kenwood follows a policy of continuous advancement in development. For this reason, specifications may be changed without notice.

TH-79A (Deluxe)

FM DUAL BANDER

ISO 9002
Meets ISO Manufacturing Quality System

KENWOOD

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KENWOOD

TKM-707

SSB Radiotelephone

Now Meets 27.5 MHz U.S.C.G. Requirement

The TKM-707 is a high performance SSB Radiotelephone designed to meet the stringent demands of the marine market in quality, and ruggedness. The TKM-707 utilizes a heavy duty rustproof aluminum chassis and the highest quality parts to maximize performance.

[Features and Benefits]

150 Watt RF Output Power
The TKM-707 provides a full 150 watts peak-to-peak RF output power from a compact package.

2 MHz to 23 MHz Marine Band Operation with 500 kHz to 30 MHz General Coverage Receiver
Covers all Marine bands from 2 MHz to 27:5 MHz. The general coverage receiver covers from 500 kHz to 30 MHz.

198 Memory Channel Capability Including Selected 195 Preprogrammed ITU Channels
Selected 150 memory channels may be factory preprogrammed. Another 62 memory channels are user-programmable.

Large Efficient Cooling System
The high efficiency cooling system allows continuous transmission at full power output for periods exceeding hours.

Multi-Scanning
The TKM-707 includes dial scan and memory scan.

VFO scan: Scans between 500 kHz and 30 MHz.
Memory scan: Scans the selected 10 channels.
ITU scan: Scans all ITU channels.

2182 kHz Emergency Alarm Built-In
The "2182" key allows instant operation on 2182 kHz emergency alarm.

Dual Mode Noise Blanker ("Pulse" or "Woodpecker")
The noise blank consists of two circuits NB-1 and NB-2, each activated by "NB" front panel key. NB-1 is most effective in suppressing pulse-type noise. NB-2 is most effective in suppressing noise of a long duty cycle nature, such as the so-called "woodpecker" type interference.

Voice Squelch Circuit
The audio squelch circuit is effective in suppressing background noise.

Selectable Power Output (High/Medium/Low)
The power output is adjustable from High/Medium/Low.

High Stability Frequency Control
The TKM-707 uses a microcomputer controlled circuit that ensures super-stable transmitted signals at all time.

All-Mode Operation
Modes of operation include SSB, and AM. (H3E)

Large, Multi-Function LCD Display
A large, multi-function liquid crystal display (LCD) provides optimum readability in bright sunlight or after dark. It indicates 6-digit frequency, memory channel number, mode, "TX", "RX" and S & RF meter.
The "DIMMER" key controls display brightness in 4 steps.

Built-In Clarifier
The front panel "CLARIFIER" control is used to "fine tune" the receiver.

Rustproof Aluminum Chassis and Stainless Steel Screws
The Aluminum chassis and stainless steel screws reduce the possibility of damage due to rust and corrosion rusting conditions.

Automatic Antenna Tuner Control Function

Terry, W9DIA talks... These kind of pages are called fillers. When our AES® Catalogs are planned, we have to order paper 4-months in advance (it takes 120 tons). Catalogs are printed in what are called sections. A 32-page section is the most economical to produce, followed by a 16-page section, then an 8-page section and then a 4, in that order. Actually, you can probably print a 16-page section for the cost of an 8. In the case of this sample page, a manufacturer was found to have not paid a prior bill for catalog space. So, at the last minute Ray comes to me and asks "what can we pop in here?" Substituted was the above picture which was taken during at trip to the Winter CES show in Las Vegas, in early January, for our Audio Plus Division. Here you see us prepared to take-off for a flight to the Grand Canyon to look for a possible site for a new Ham Store. Finding none, we landed on the canyon floor to have lunch and champagne. On the way back, we took a different route and couldn't find anything suitable there either, Pictured left to right are: Elin Sterman, K9YHE, Terry Sterman, W9DIA (the King seated on his throne), Maria Strehlow and Todd Strehlow, our new Controller, plus our fearless pilot. Todd says:

"It's darn hard work, but somebody has to do it!"

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What's Amateur Radio worth to you?

You invest every year in equipment, antennas and other Amateur Radio accessories. You probably insure your gear because it's valuable and expensive to replace.

Is Amateur Radio valuable to you? Are your privileges worth protecting? And can you insure that the Amateur Radio you know and enjoy today will continue into the future? **Not alone.**

The American Radio Relay League is Amateur Radio's best representative wherever rules are made governing the Amateur Radio spectrum. **There is no other organization in the United States that works on behalf of Amateur Radio with Congress and the FCC.**

Today, the **ARRL** is your voice in all worldwide arenas where the allocation and management of radio spectrum are discussed.

Can the ARRL maintain a formidable presence in Amateur Radio matters? **Not alone.**

The key to a strong ARRL will always be our membership. Each member, simply by joining, plays a pivotal role in Amateur Radio decision-making and preservation.

Can you join another organization and receive a monthly magazine? Obviously, we think ***QST*** is your best choice for an Amateur Radio journal, but there are others. The question is: **Do you want more for your money than just a magazine each month?**

As an **ARRL Member** you'll receive ***QST*** and have access to **"Members Only"** benefits and services. Beyond the immediate benefits, your membership provides essential support to **the only US organization dedicated to fighting for Amateur Radio and for you.**

Is ARRL membership worth it? **Is Amateur Radio important enough to help insure its future? It's your decision.** Please fill out the membership application and mail it today.

Yes, Amateur Radio is important to me and I want to be part of its future. Please enroll me as an ARRL member and rush my first issue of *QST* and membership certificate.

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M95

Winter, 1996 Yaesu Amateur Radio Equipment

Yaesu Amateur Radio Equipment. As used by the Amateur Radio Operators at the National Hurricane Center, Miami, Florida, USA

40th Anniversary

SINCE 1956

YAESU

Performance without compromise.™

FT-1000MP HF All-Mode Transceiver

The FT-1000MP incorporates the front end design and dynamic range of the FT-1000/D and introduces Enhanced Digital Signal Processing (EDSP), a built-in Collins SSB Mechanical Filter for superior IF performance, and Direct Digital Synthesizers (DDS) to provide low noise and fine tuning steps. Unique Shuttle Jog™ Ring Tuning Knob enhances tuning flexibility, speed, and accuracy. As legendary as its namesake, JA1**MP**.

Features

- RX: 100 kHz-30 MHz
  TX: 160-10 m Amateur Bands
- Enhanced Digital Signal Processing
- Shuttle Jog™ Tuning Enhancement
- Collins SSB Filter Built-in
- Directional Tuning Scale for CW/Digital Mode and Clarifier Offset Display
- Dual In-Band Receive w/Separate "S" Meters
- Selectable Antenna Jacks
- Selectable Cascaded IF Filtering
- User Programmable Tuning Steps
- Custom Feature Set-Up via New Menu System
- Adjustable for Output, 5-100 W (5-25 W AM)
- True Base Station: 100-117, 200-234 V AC and 13.5 VDC power inputs

ENHAN

FT-990
HF Transceiver

A self-contained base station with space-saving, built-in AC power supply, the FT-990 is incredible on a crowded band. Only HF with dual digital SCAF, its plug-in board design and simple front panel provide pure QSO enjoyment.

Features

- Frequency coverage:
  RX: 100 kHz-30 MHz
  TX: 160-10 m Amateur Bands
- Built-in Dual Digital Switched Capacitance Filters (SCAF)
- Built-in High Speed Antenna Tuner w/39 Memories
- RF Frequency-Shift Speech Processor (FSP)
- Dual VFOs w/Direct Digital Synthesis (DDS)
- 90 Memory Channels store Frequency mode and Bandwidth
- Band Stacking VFO System
- Full and Semi Break-in CW Operation
- Multi-mode Selection on Packet/RTTY; Interface to TNCs
- Adjustable RF Power
- Variable Threshold Noise Blanker
- Optional Digital Voice Recorder (DVS-2)
- Front Panel RX Antenna Selection
- DC Version Available without Power Supply

FT-900CAT
Compact HF Transceiver

The first HF compact base station to go mobile in any vehicle. Its remote front panel design and unique Omni-Glow™ LCD display, plus performance and ease of operation in one small package, makes this transceiver the right choice for you.

Features

- Frequency coverage:
  RX: 100 kHz-30 MHz
  TX: 160-10 m Amateur Bands
- Built-in Auto Antenna Tuner
- Direct Keypad Entry when used as a Base Station
- Omni-Glow™ LCD Display
- 100W on SSB, CW, FM modes; 25W on AM
- IF Shift and 30dB Notch Filter
- Digital S/RF, SWR, & ALC Meters
- Programmable CTCSS Encode w/Repeater Offset
- Direct Digital Synthesis (DDS)
- 100 Memory Channels
- CW Full Break-in Keying w/ Adjustable Speed
- Fast/Slow AGC Circuit
- Intercept Point Optimization (IPO)
- Duct Flow Cooling System
- Twin Band Stacking VFOs
- Built-in Noise Blanker
- Built-in Adjustable Speech Processor
- Built-in SSB Collins Mechanical Filter

TAL

SIGNAL

P PROCESSOR

DSP operates in transmit
d receive modes, producing
hanced signal-to-noise ratio
d improved intelligence
overy on both ends of the
mmunication path. EDSP
vides 4 random-noise
luction settings, enhanced
dio intelligibility with 4 voice
ponse realization programs,
or sharp CW band pass filters,
d an automatic notch filter
ich identifies and attenuates
riers or heterodynes. Band
ss selectable contours filtering
er high, mid and low cuts.

FT-1000/D HF Transceiver

Judged "best overall" by top DX'ers worldwide, the FT-1000/D delivers optimum receiver performance and real "muscle" on transmit. With a front panel featuring two flywheel-weighted tuning knobs and two large displays, it's a perfect blend of electronics and engineering. Hear signals you've never heard before.

Features

- Frequency coverage:
  RX: 100 kHz-30 MHz
  TX: 160-10 m Amateur Bands
- RF Output Power Up to 200 Watts
- True Cross-band Dual Receive: Two Large Tuning Knobs
- Front Panel RX Antenna Switch: For Beverage or Loop
- Built-in Antenna Tuner w/32 Memories
- Direct Digital Synthesis (DDS)
- 100 Memory Channels: Independent ATU and Mode/IF Filter Memory
- CW Spot and Two CW Key Jacks for Maximum Convenience
- Dynamic Range: 108 dB
- Optional Digital Voice Recorder (DVS-2): 16 Sec. each RX/TX

FT-840
Compact HF Transceiver

A wealth of features and high-tech performance in the field or mobile, this HF won't break your budget. With its bright LCD display, die-cast heat sink and internal thermally switched fan, you'll take this perfect companion with you everywhere.

Features

- Frequency coverage:
  RX: 100 kHz-30 MHz
  TX: 160-10 m Amateur Bands
- Direct Digital Synthesis (DDS)
- IF Shift
- 100 Memory Channels (Independent TX/RX per memory)
- Twin Band Stacking VFOs
- FM Repeater Operation
- Automatic 10-Meter Repeater Offset w/Selectable CTCSS Encode
- CW Reverse Feature
- Choice of Two Optional Antenna Tuners:
  FC-10 Matching External Antenna Tuner
  FC-800 External Remote Antenna Tuner

FT-736R
Multi-Mode VHF/UHF Full Duplex Base

Designed to meet the needs of the most demanding VHF/UHF and satellite operators, the FT-736R includes 144 and 430 MHz, and optional user-select 50, 220 or 1240 MHz modules. The FT-736R can be powered from 13.8 VDC or its built-in AC power supply.

Features

- Frequency coverage:
  2 m: 144-148 MHz
  70 cm: 430-450 MHz
- 100 Memory Channels
- Full Cross-band Duplex with Inverted Tracking for AO-13
- Easy Interface to TNC via Data In/Out Jack
- Independent Linear Amplifier Relay Control Lines (Each Band)
- Optional modules for 50-54 MHz, 222-225 MHz and 1240-1300 MHz
- RF Output Power:
  25 Watts on 144, 222, 430 MHz
  10 Watts on 50 and 1240 MHz

FT-5100
Dual Band Mobile

Compact with a built-in antenna duplexer the FT-5100 defined "dual band" with two, 2-meter RX frequencies or two UHF frequencies. Not only is the FT-5100 the smallest dual band made, it's the only one that comes with its own backlit DTMF Mic. An unbeatable combination!

Features

- Frequency coverage:
  - 2 m: RX: 130-174 MHz
    TX: 144-148 MHz
  - 70 cm: RX/TX: 430-450 MHz
- 94 Memory Channels (47 per Band), Odd Splits On Any Memory
- Dual In-Band Receive (V/V, U/U or V/U Receive Operation)
- DTMF Paging and Coded Squelch
- Packet Radio TNC Jack Built-in to Back of Radio
- CTCSS Encode Built-in (Decode Optional)
- Dual Receive with Balance Control
- Full Duplex Cross Band Operation
- Built-in Cross Band Repeat
- Built-in Antenna Duplexer
- Backlit DTMF Mic
- Automatic 8 Level Display Dimmer
- RF Output Power:
  - 2 m: 50/5 Watts (high/low)
  - 70 cm: 35/5 Watts (high/low)

FT-8500
Dual Band Mobile

This top-of-the-line, compact FM mobile includes extraordinary new features. Like Spectra-Analyzer™ to view station activity above and below a frequency, or within memory banks, and customize your radio by choosing the FS-10 Smart Controller™ Microphone or the MH-39 DTMF Microphone. The next generation is here!

Features

- Frequency coverage:
  - 2 m: RX: 110-180 MHz
    TX: 144-148 MHz
  - 70 cm: RX: 410-500 MHz
    TX: 430-450 MHz
- Built-in Spectra-Analyzer™
- 6-Character Alpha-Numeric Display
- 110 Memories (in 5 memory banks)
- Omni-Glow™ Display
- Digital Battery Voltage Display
- Dedicated Packet I/O jack (1200/9600 baud)
- 3-Level Auto-Mute with Mute Timer
- AM Aircraft Receive (110-136 MHz)
- V+V, U+U, or V+U Dual Receive
- 3 Selectable Power Output Levels
  - 2 m: 50/10/5 W
  - 70 cm: 35/10/5 W
- Auto Power Off (APO) and Time-out Timer (TOT)
- 10-Memory DTMF Autodialer
- Cloning Feature
- 5 Scanning Modes including new Clear Scan
- Selectable Scanning Speed
- Cross-band and One-way Repeat
- Dual Speaker Jacks
- Easy-to-Understand Feature Menu

FT-2200/7200
2-M/70-cm Mobiles

The mobiles that fit in anyplace. Smaller, sleeker and first with 3 power levels stored in each memory. The FT-2200 (and FT-7200) is designed to fit into today's more compact cars and comes with more memories than any competing model. You just won't leave home without it.

Features

- Frequency coverage:
  - FT-2200 RX: 110-180 MHz
    TX: 144-148 MHz
  - FT-7200 RX/TX: 430-450 MHz
- 50 Memory Channels
- AM "Aircraft" Receive (110-139 MHz)*
- Built-in DTMF Paging and Coded Squelch
- Backlit DTMF Mic
- Small Compact Size
- RF Output Power (Stored in Each Memory):
  FT-2200 50/20/5 Watts (high/med/low)
  FT-7200 35/15/5 Watts (high/med/low)

* FT-2200

FT-5100

NEW

ADMS-2 Windows™ Programming Software for FT-8500

Easy to install software permits assignment of frequencies, repeaters, and alphanumeric labels from your computer. Simple to use "how to" instructions are included.

NEW

FT-8500/MH-39

FT-2500M/7400H
2-M/70-cm Mobiles

Nothing is tougher than the FT-2500M and FT-7400H) when rough and rugged mobile is the call. Huge LCD Display and backlit DTMF Mic make night-time operation safer. The FT-2500M is the first 2-meter amateur radio to be awarded a MIL-STD 810 rating for shock and vibration. Performance and strength for mobile or base station operation.

Features

Frequency coverage:

FT-2500M	RX:	140-174 MHz
	TX:	144-148 MHz
FT-7400H	RX/TX:	430-450 MHz

31 Memory Channels, Odd Splits On Any Memory
Alpha Numeric Display
Advanced Track Tuning (ATT)
Automatic Display Dimmer
True FM Modulation
Backlit DTMF Mic
CTCSS Encode Built-in (Decode Optional)
Five Scanning Functions
3 Selectable Output Power Levels
FT-2500M 50/20/5 Watts
FT-7400H 35/15/5 Watts

FT-290/690/790RII
VHF/UHF Multi-Purpose Mobiles

Just sling it over your shoulder and go. To the top of the mountain or that remote campsite. True field operation performance for fun or serious emergency situations.

Features

- Frequency coverage:
  - FT-290RII RX/TX: 144-148 MHz
  - FT-690RII RX/TX: 50-54 MHz
  - FT-790RII RX/TX: 430-450 MHz
- RF Output Power:
  - FT-290RII 25 Watts (2 Watts Portable)
  - FT-690RII 10 Watts (2 Watts Portable)
  - FT-790RII 25 Watts (2 Watts Portable)
- All Mode Operation USB, LSB, CW, FM

Remote Control Wireless Mic

MW-2 (FT-5100/5200/6200/2200/7200)

No tangled cords to worry about, just step away from your mobile rig and talk. Perfect for "backseat" drivers or navigators. Available as an accessory.

Backlit DTMF Microphone

Exclusive to Yaesu, and included with every FM mobile sold, this backlit mic helps to insure safe autopatch operation in dim light and during night-time use. Designed for ease of use, the large keypad is invaluable. May be purchased separately. See Yaesu Amateur Products Accessories and Options Brochure for exact model number fitting your mobile.

FT-2200

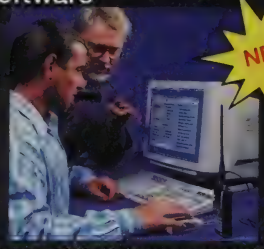
FT-290RII

NEW

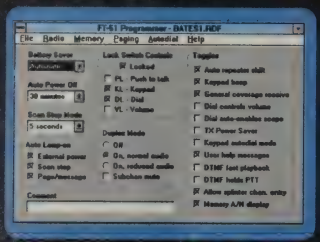
FT-2500M

ADMS-1C

Windows™ Programming Software



Program all the features you need for the FT-51R, FT-50R, FT-11/41R, or FT-10/40R with ADMS-1C Windows™ Programming Software. Just "point and click", and easy programming of these dual band and 2-meter HTs is yours. Use to download from HT to PC, then clone the information to another FT-50R, FT-51R, FT-11/41R, or FT-10/40R HT instantly! Create memory files for cities you visit then load and go! ADMS-1C Windows™ Programming Software is a neat little package that will change your HT use forever.



Main Window – Use the Main Window to customize your handheld the way you like it. For example, the Auto Repeater Shift and Keypad Beep Tone can be selected "on" or "off". When you are scanning, the Display Lamp can be programmed to light up when a Busy Channel is found.

Memory Channel Edit Window – Each Memory Channel has a detailed window. With a simple click of the mouse, you can program the following for each memory: Frequency, Alpha Name, Repeater Offset, CTCSS, Power Level, Channel Step Size and more!

ADMS-1C Windows™ Programming Kit

FT-10/40R

Ultra Compact Handhelds

The FT-10/40R the first radio with all of the electronics in the keypad. Built to military spec commercial radio standards inside and out, the FT-10/40R is feature-packed, and available in two standard versions. Three keypad options offer more features, or additional memory channels. Four choices!

Features

- Frequency coverage:
  - FT-10R
    - 2 m: RX: 140-174 MHz
      TX: 144-148 MHz
  - FT-40R
    - 70 cm: RX: 420-470 MHz
      TX: 430-450 MHz
- Choice of 4 Keypads
  - FTT-10/A16S
  - FTT-10/A16D
  - FTT-10/A16
  - FTT-10/A06
- Auto Range Transpond System™ (ARTS™)
- MIL-STD 810
- High Audio Output
- 12 V DC Direct Input
- Alphanumeric Display
- RX/TX Battery Savers
- Digital Coded Squelch (DCS)
- Digital Voice Recording System (DVRS) w/FTT-10/A16S
- True FM for better voice clarity
- High Speed Scanning System
- 2.5 and 5 W available
- Full line of accessories

FTT-10/A16D
16-Key, CTCSS Enc/Dec,
DCS Enc/Dec, 99 Channels

FT-50R

Ultra Compact Dual Band Handheld

Foremost top-performing, durable dual band with MIL-STD 810 rating and water resistant construction. This is one tough little dual bander!

Features

- Frequency coverage:
  - Wide Band Receive
    - RX: 76-200 MHz, 300-540 MHz
      590-999 MHz*
    - TX: 144-148 MHz
      430-450 MHz
- AM Aircraft Receive
- MIL-STD 810 Rating
- Digital Coded Squelch (DCS)
- 112 Memory Channels
- 12V DC Direct Input
- High Speed Scanning
- Alphanumeric Display
- CTCSS Encode (Decode w/FTT-12)
- Auto Range Transpond System™ (ARTS™)
- Dual Watch
- Direct FM
- High Audio Output
- ADMS-1C Windows™ Programmable
- Four Battery Savers:
  - Automatic Power-Off (APO)
  - Receive Battery Saver (RBS)
  - Selectable Power Output (SPO)
  - Transmit Battery Saver (TBS)
- Time Out Timer (TOT)
- 2.5 and 5 Watt Versions Available
- Optional Digital Voice Recording System (DVR
- Full line of accessories

* Cellular blocked.

T-51R
Dual Band Handheld

he first dual band HT with scrolling
struction menu "windows"!
pectrascope™ too, for continuous real
ne activity scanning in VFO or 8 user-
oice memories.

eatures

Frequency coverage:
2 m: RX: 110-180 MHz
TX: 144-148 MHz
70 cm: RX: 420-470 MHz
TX: 430-450 MHz

- 20 Memory Channels (80 w/Alpha-Numeric)
- Spectrascope™ LCD Display
- Scrolling User Help Menu
- Character Alpha-Numeric Display
- Up/Down Volume/Squelch Controls & Display
- Selectable Sub-Band TX Mute
- Automatic Tone Search (ATS)
- Digital Battery Voltage Display
- AM Aircraft Receive
- Scanning Light System (SLS)
- Large Backlit Keypad & Display
- Automatic Repeater Shift (ARS)
- Multiple Scanning Modes
- Selectable Scan Stop Modes with Scan Skip
- User Selectable Lock Function w/15 Combinations
- Automatic Power Off (APO)
- TX/RX Battery Savers Built-in
- Handy Cloning Feature
- Selectable Power Output Levels
- Message System with CW ID
- Selectable RX Smart Mute™
- Cross-Band & One-Way Repeat Functions
- DTMF Paging/Coded Squelch Built-in
- Dual Receive Configurations – VHF/VHF, UHF/UHF, & VHF/UHF

FT-11/41R
2-m/70-cm Handhelds

World's smallest size HT with a full sized keypad. You'll wonder how we did it, till you remember Yaesu pioneered 2-way radio micro technology. It's full-featured and pencil thin with a 4.8V battery for 1.5 watts on TX. Just punch up the exclusive backlit DTMF keypad and Volume/Squelch control, set the alphanumeric display and start talking!

Features

- Frequency coverage:
  FT-11R 2 m: RX: 110-180 MHz
  TX: 144-148 MHz
  FT-41R 70 cm: RX: 420-470 MHz
  TX: 430-450 MHz
- Selectable Alphanumeric Display
- Compact Battery Design
  4.8V produces 1.5 Watts
  9.6V produces full 5 Watts
- 150 Memory Channels
  (75 when Alpha Numeric)
- AM "Aircraft" Receive (110-136 MHz)
- Small Size: 4"H x 2-1/4"W x 1"D
- Automatic Battery Saver (ABS)
- MOS FET Power Module
- Backlit DTMF Keypad and Display
- Backlit Up/Down Volume/Squelch Controls
- DTMF Paging/Coded Squelch
- Automatic Power Off (APO)

FT-411E/911
Compact FM Handhelds

For FM performance under strenuous climatic conditions, the FT-411E (and FT-911) stands up like the champ it is. Features and durability make this radio the choice of amateurs worldwide.

Features

- Frequency coverage:
  FT-411E 2 m: RX: 130-174 MHz
  TX: 144-148 MHz
  FT-911 23 cm: RX/TX: 1240-1300 MHz
- 49 Memory Channels
- CTCSS Encode/Decode Built-in
- Built-in VOX
- Backlit Keypad and Display
- Automatic Power Off (APO)
- Programmable Battery Saver
- Multiple Scan Modes

FT-23/33R
VHF/UHF FM Handhelds

Ultra compact and microprocessor controlled, these HTs offer the convenience of small size yet simple operation. Designed for years of rugged use, housing will withstand a standard EIA drop test without a problem.

Features

- Frequency coverage:
  FT-23R 2 m: RX: 140-150 MHz
  TX: 144-148 MHz
  FT-33R 1.25 m: RX/TX: 222-225 MHz
- 10 Memory Channels
- Simple Operation
- Multiple Scan Modes
- Rugged Die-cast Frame

Rotators

You're looking at the only rotators manufactured by a major amateur radio communication company.

Who better to determine the best specifications and durability for precision amateur radio performance under all circumstances. Smooth and quiet without noisy wedge brakes, these rotators are housed in weatherproof, die-cast aluminum enclosures permanently lubricated for maintenance-free operation and years of service. Compatible with most U.S.A. made antenna tower accessory shelves, Yaesu rotators come with a One-Year Warranty.

Computer Controllers

Computer controllers for rotators now available. **GS-23** Computer Controller for Rotators: G-800SDX, G-1000SDX, G-2800SDX. **GS-232** Computer Controller for Satellite Rotator: G-5400B.

Model	Application	Mast Size	Rotator Size	Pre-sets	Wind Load
G-450XL	Light/medium-duty	1¾-2 inches	12½"H x 7½" Dia.	No	10 Sq. Ft.
G-800S	Medium-duty	1½-2½ inches	12½"H x 7½" Dia.	No	17 Sq. Ft.
G-800SDX	Medium-duty	1½-2½ inches	12½"H x 7½" Dia.	Yes	17 Sq. Ft.
G-1000SDX	Heavy-duty	1½-2½ inches	12½"H x 7½" Dia.	Yes	23 Sq. Ft.
G-2800SDX	Extra Heavy-duty	1⅞-2½ inches	13⅝"H x 8" Dia.	Yes	34 Sq. Ft.
G-5400B	Azimuth-Elevation Rotator combination	1½-2½ inches (Boom Dia. 1¼-1⅝ in.)	Mounted together 12½"H x 7½" Dia.**	No	11 Sq. Ft.
G-500A	Elevation only	1½-2½ inches (Boom Dia. 1¼-1⅝ in.)	10½"H x 7½" Dia.	No	12 Sq. Ft.

Accessories: **CG-038** Mast Clamp, CG-048 Mast Clamp, **GS-050** Thrust Bearing, **GS-065** Thrust Bearing. Not Shown: G-800S, G-800SDX, G-1000SDX.

**Wind load ratings are valid when rotator is mounted in tower.*

***Rotator size mounted together.*

G-450XL

A new entry-level rotator priced low, for light to medium duty antennas. Maximum antennas wind load, 10 sq. ft.

VHF/UHF REPEATERS

VXR-5000V
135-148 MHz 25 Watt

VXR-5000U
400-450 MHz 25 Watt

These compact synthesized DC-powered repeaters are manufactured by Yaesu for their Vertex Radio Communications commercial product line. Now available for amateur use. The repeaters can be wall mounted or installed in a standard 19" rack. (Optional mounting kit required.)

Specifications	
Frequency Coverage	135-148 MHz or 430-450 MHz
Power Output	2-25 Watts @ 100% duty cycle
Current Consumption	7.0A @ 13.8 VDC
Frequency Stability	±2.0 ppm, −30°C to +60°C
Programmable Features	Frequency, CTCSS, Hi/Low Power levels, Hang timer, Time-out timer
Programming	Optional VX VPL-1 programming kit

FRG-100
Communications Receiver

Winning the prestigious 1992 World Radio TV Handbook award for "Best Communications Receiver" when introduced is reason enough to make the FRG-100 your receiver. And if that's not enough, consider its industry-exclusive features like adjustable SSB carrier offset and user selectable 10 Hz, 100 Hz or 1 kHz tuning steps. Or the exciting Broadcast Band mode with 16 pre-programmed international broadcast bands. Even 50 memory channels and twin 12/24-hour clocks to keep you tuned in where and when you like – day or night! Join the experts and make the FRG-100 your "best communications receiver", too.

Features

- Frequency coverage: 50 kHz-30 MHz
- 50 Memory Channels
- Twin 12/24-Hour Clocks
- User Selectable Bandwidths
- Alarm and Timer Functions
- Dual Antenna Jacks (Coax and Open Wire)

Accessories

FM Unit-100: FM Receiver Unit
TCXO-4: Temperature Compensated Crystal Oscillator
PA-11B: 117 V AC Adapter
PA-11C: 220 V AC Adapter
YF-110C: CW Filter (500 Hz)
YF-110CN: CW Narrow Filter (250 Hz)

Specifications	
Frequency Range	50 kHz-30 MHz
Mode	USB, LSB, CW, AM, FM (optional)
Dimensions (W x H x D)	9¼ x 3⅝ x 9⅝ inches 238 x 93 x 243 mm

G-2800SDX

The new top of the line rotator for extra heavy duty antenna installations. Maximum antenna wind load, 34 sq. ft.

NEW

G-500A

Elevation rotator for space communication antennas. Maximum antenna wind load, 12 sq. ft.

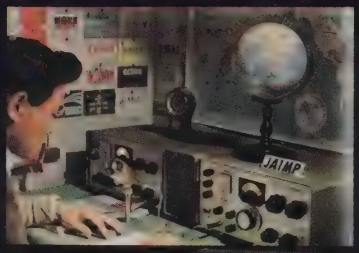
G-5400B

Azimuth-Elevation combination for space communication antennas. DIN connection provided for computer operation. Maximum antenna wind load, 11 sq. ft.

NEW

EDSP RX/TX

All-Mode HF Transceiver FT-1000MP



The year was 1956. Electronic communication throughout the world was on the threshold of significant and remarkable change. Intrigued by the development of single-sideband radio theory, a young engineer and amateur radio experimenter painstakingly assembled an SSB transmitter. Word of his successful efforts spread quickly among his friends, and soon radio amateurs from all over the country were requesting transmitters just like it. Thus was born the first invention of JA1MP, founder of Yaesu. Though his key is now silent, in tribute to his leadership and exceptional contributions to the radio art, the FT-1000MP carries the memory of his call sign.

An HF Masterpiece, Combining the Best of Digital and RF design technology. The FT-1000MP.

Specifications

- EDSP (Enhanced Digital Signal Processing)
- Shuttle-jog Rapid Tuning Enhancement
- Directional Tuning Scale for CW/Digital mode and clarifier offset display
- Dual In-Band Receive w/ Separate S-Meters
- Selectable Antenna Jacks
- Collins SSB Mechanical Filter built-in, 500 Hz CW Collins filter plug-in, optional
- Selectable Cascaded Crystal and Mechanical IF Filtering (2nd and 3rd IF Filters)
- User-programmable Tuning Steps w/0.625 Hz High Resolution Low-Noise DDS Circuit
- Custom Feature Set-up via New Menu System
- Adjustable TX Output Power: 5-100W (5-25W AM)
- True Base Station: Both 100-117 or 200-234± VAC 10%, 50/60 Hz and 13.5 VDC Power Inputs

Blending digital and RF technology, the FT-1000MP features a Yaesu exclusive: Enhanced Digital Signal Processing (EDSP). Beginning on the receive side with Yaesu's industry-standard high-intercept front end design, the RF signal is then fed to the IF stages, where an impressive array of 8.2 MHz and 455 kHz IF filters (including a built-in Collins SSB Mechanical Filter) establish the tight shape factor so important in obtaining high dynamic range and low noise figure. Finally, the EDSP system provides specially-designed filter selections and response contours for maximum intelligence recovery.

Only with this combination of EDSP, independently selectable 8.2 MHz and 455 kHz IF filters, and a low-noise DDS local oscillator system can receiver performance without compromise be obtained. You can customize your FT-1000MP by choosing from 2.0 kHz, 500 Hz, and 250 Hz optional, cascaded IF filters, then zero in on weak signals using Yaesu's exclusive Shuttle-jog Rapid Tuning Enhancement and high-resolution (0.625 Hz) DDS VFO. Without question, the FT-1000MP is the most technologically advanced HF rig today.

EDSP operates in both transmit *and* receive modes. On receive, the EDSP produces enhanced signal-to-noise ratio and significantly improved intelligence recovery during difficult situations involving noise and/or interference. The result of hundreds of hours of laboratory and real-world experimentation, EDSP's 4 preset random noise reduction protocols and 4 digital filtering selections are controlled by easy-to-use concentric controls on the front panel of the transceiver. High, low, and mid-range cuts for voice work are teamed with razor-sharp CW bandpass filters and an automatic notch filter which identifies and attenuates undesired carriers or heterodynes. Also operational in the transmit mode, EDSP provides 4 performance-enhancement pattern selections for different operating circumstances, ensuring best readability of *your* signal on the other end of the path.

Once again, Yaesu's engineers have reaffirmed the vision and dedication of JA1MP which began nearly 40 years ago. See the incomparable FT-1000MP today.

FT-1000/D
Legendary 200W
All Mode HF Transceiver
"The Dream Station"

YAESU
Choice of the World's top DX'ers

© 1995 Yaesu USA
17210 Edwards Road, Cerritos, CA 90703
(310) 404-2700

Specifications subject to change without notice. Specifications guaranteed only within amateur bands. Some accessories and/or options are standard in certain areas. Check with your local Yaesu dealer for specific details. Collins is a trademark of Rockwell International Corporation

High Powered 2-m FM Transceiver **FT-3000M**

It's Awesome!

You know who you are. You drive farther, use your mobile rig longer, and buy the most dependable radio products you can get. The FT-3000M is the *only* amateur 2-m FM mobile radio with 70 full watts of TX power! Reassuring, when you're driving a lonely stretch of highway!

Like the 50-Watt FT-2500M, the FT-3000M is rated MIL-STD 810. And, both let you take the back roads with confidence. Built to resist jolts, bumps and the corrosive affects of dust, mist, and rain, the new FT-3000M, and popular FT-2500M take abuse and perform like champs. Plus, the FT-3000M is a great base, too.

The new FT-3000M comes equipped with some sensational exclusive features!

- WIDE BAND RECEIVE! From 110-180 MHz, VHF, and 300-520 MHz UHF to 800-999 MHz*. And, AM aircraft receive!
- TWIN COOLING FANS! Unique, twin fans keep the FT-3000M running cool without a problem! So, don't worry about long transmission keydowns.
- SELECTABLE POWER OUTPUT! An awesome 70 watts, plus 50, 25, and 10 Watts.
- TRUE FM! Voice clarity has never been better.
- INTERACTIVE PROGRAMMING! Continual scrolling menu guides you through 50 settings—and won't let you forget the next step!
- SIMPLIFIED FRONT PANEL! New Quick-Touch™ dual-concentric knob controls menu programming and adjustments.
- PC PROGRAMMABLE! Optional ADMS-2B Windows™ Programming Software programs your FT-3000M in seconds!

The FT-3000M is feature-rich just like the FT-2500M, 50-Watt mobile, and built to the tough performance standards you've come to expect from Yaesu. We think you should have at least one, don't you?

"This is true Wide Band receive! VHF, UHF, and 800-999 MHz."*

"Digital Code Squelch gives me more privacy than CTCSS."

"Smart-Search™ scans and stores active channels for quick access."

"Yaesu did it again!"

US MILITARY APPROVED MIL-SPEC 810

Features

- Frequency Coverage Wide Band Receive
  RX: 110-180 MHz, 300-520 MHz, 800-999 MHz*
  TX: 144-148 MHz
- AM Aircraft Receive
- MIL-STD 810 Rating
- Interactive Programming
- High Power Output: 70 Watts, plus 50, 25 and 10 Watts
- Quick-Touch™ Dual Concentric Control Knob
- Twin Cooling Fans
- ADMS-2B Windows™ Programmable
- Digital Coded Squelch (DCS)
- 81 Memory Channels
- Auto Range Transpond System™ (ARTS™)
- 1200/9600 Baud Packet Compatible
- Smart-Search™
- Alphanumeric Display
- Dual Watch
- Full line of accessories

* Cellular Blocked

YAESU

Performance without compromise.™

For the latest Yaesu news; hottest products, visit us on the Internet! http://www.yaesu.com

© 1996 Yaesu USA, 17210 Edwards Road, Cerritos, CA 90703 (310) 404-2700
Specifications subject to change without notice. Specifications guaranteed only within amateur bands. Some accessories and/or options are standard in certain areas. Check with your local Yaesu dealer for specific details.

Power Amplifiers...

AMERITRON HF AMPLIFIERS

▶**ALS-600** No tune, solid-state FET linear with continuous coverage 1.5–22MHz; 10/12M with easy-to-install optional kit*. 100W drive for 600W PEP SSB, 500W CW output. Illuminated Cross-Needle SWR/Wattmeter, SWR and overload protection, front panel ALC control. Transmit, ALC, SWR LED indicators. Includes separate 110/220V power supply. Both units are 6"h x 9½"w x 12"d, 48 lbs (total) **$1099.00**

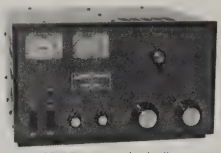
AL-800/800H AL-811/811H

▶ **AL-800** Covers 160-12M; owner modifiable for 10M* Uses single 3CX800A7 tube , 1200 watts output **$1429.00**

▶**AL-800H** Covers 160-12M; owner modifiable for 10M* Uses two 3CX800A7 tubes, 1500 watts output..... **$2059.00**

▶**AL-811** Low cost Desktop linear! Covers 160-12M; owner modifiable for 10M* Uses three 811A tubes with tuned input to deliver 600W PEP SSB/500W CW output with 75W drive. Vernier drive plate tuning, illuminated grid and plate voltage/current meters, adjustable ALC. Built-in 110/220V power supply. 16"d x 13¾"w x 8"h, 40 lbs **$629.95**

▶**AL-811H** Similar to AL-811, but uses four 811A tubes for 800W PEP SSB output with 75W input **$759.95**



▶**AL-80B** Covers 160-15 meters including WARC and MARS; bands. Modifiable for 10/12 meters*. Single 3-500Z; 85W drive – 1KW PEP SSB and 850W CW output. Dual illuminated cross-needle meters, QSK compatible.Built-in 110/220V supply. 14"w x 8"h x 15½"d, 52 lb **$1069.00**

AL-82
AL-1200
AL-1500
similar in appearance

▶**AL-82** Full legal output! Covers 160-12M; owner modifiable for 10M*.Uses two Eimac 3-500Z tubes and separate CW/RTTY or SSB bias settings. 100W drive – 1500W continuous output. Built-in power supply with Hypersil® transformer, 220V–15A. 10"h x 17"w x 18"d, 76 lbs **$1769.00**

▶**AL-1200** Full legal output! Covers all ham bands 1.8–21MHz + WARC bands; owner modifiable for 10M*. Single Eimac 3CX-1200A7 ceramic tube requires 100W drive for 1500W output. Heavy silver-plated tank components, built-in heavy-duty power supply with Hypersil® transformer, 220V–15A. 10"h x 17"w x 18"d, 83 lbs..... **$1849.00**

▶**AL-1500** Full legal output! Covers 160-12M; owner modifiable for 10 meters. Uses a single Eimac 8877 ceramic tube to deliver 1500W+ output with only 65W drive. Heavy-duty built-in power supply with Hypersil® transformer, 220V–15A. 10"h x 17"w x 18"d, 77 lbs. **$2269.00**

▶**ALS-500M** No tune-up, solid-state FET linear amplifier. Ideal for high-powered mobile operation. Continuous coverage 1.5 to 22MHz; 10/12M with optional kit*. Four 2SCC2879's deliver 500W PEP SSB, 400W CW with less than 100W drive. SWR/overload protection, remote ON/OFF control. Requires 13.8VDC @ 80A peak for PA, 12-15VDC @ 4A for control and bias. 3½"h x 9"w x 15"d, 7 lbs **$679.95**

IC-2KL IC-4KL

ICOM HF AMPS

▶**IC-2KL** Solid-state linear amplifier. Covers 160–15M. 50 to 80W for 600W PEP SSB/500W CW output. Separate RF and power supply decks. Automatic band switching operation when using with an ICOM transceiver. 110V–20A (220V with modification). Both units are: 4½"h x 9½"h x 15½"d, 45 lbs (total) **$2459.95**

▶**ICOM IC-4KL** Solid-state linear with separate control and RF units. Covers 160–12M. Four 8 transistor modules, 100W drive – 1000W output Built-in automatic antenna tuner with memory, QSK full-break-in CW. Dual meters for SWR, final amp current and temperature, and output. Automatic operation with ICOM xcvrs. 110V or 220V. Controller: 5¾"h x 7¾"w x 13½"d, 66 lbs. Amp/Ps: 11¾"h x 16¾"w x 18"d, 79 lbs..... **$7999.95**

VECTRONICS HF AMPLIFIER

▶**HF-600QSK** 1.2 KW desktop linear. Covers 160–15M including WARC and MARS; user modifiable for 12 and 10M*. Class AB2 grounded grid circuit,3-500Z zero-bias triode. Tuned input, 60W (minimum) drive for 800W output-continuous duty SSB, 50% other modes. Cross needle metering system, adjustable ALC, vernier tuning and loading, high speed dual vacuum relay system for CW, AMTOR, RTTY. 7½"h x 14"w x 16½"d, 35 lbs..... **$1595.00**

YAESU HF AMPLIFIER

▶**FL-7000** 160–12 meter solid-state amplifier. Built-in automatic antenna tuner and power supply. 70W drive for 600W output. Full break-in CW, HF Packet and AMTOR. Tuner memory for settings and antenna selection. Amplifier turns off and attempts to rematch if SWR exceeds 2:1. Automatic selection of four different antennas with optional unit. Automatic band change with YAESU xcvrs; 110/220V. 5"h x 15"w x 15"d, 60 lbs **$2099.95**

RF CONCEPTS

VHF/UHF AMPS

Single and Duobanders 12V DC • FM/CW/SSB modes • GaAsFET preamp • Overdrive protection

Model	input	output	amps	Price
2-meters				
2-23	0.2-5W	30W @ 2W in	5	$139.95
MAXAMP-10	10W	150W+	25	$319.95
MAXAMP-45	40W	150W +	22	$289.95
VHF 1-60*	1W	60 @ 1W in	10	$229.95
220MHz				
3-22	5W	20W	4	$139.95
3-211	2W	110W	22	$319.95
3-112	0.2-15W	120W @10W in	12	$319.95
3-312	30W	120W	22	$299.95
440MHz				
4-32	3W	20W	4	$149.95
4-110	10W	100W	22	$359.95
4-310	30W	100W	20	$339.95
UHF-50*	3W	50W	10	$269.95
Dual Band - 2m/440 MHz				
2/70*	3W/5W	30W/20W	6	$239.95
2/70G	3W/5W	30W/20W	6	$259.95
2/70H*	28W/20W	200W/125W	40	$699.95

*Denotes No Receiver Preamplifier CLOSEOUT

New! **Mini-AMPS**

144	2 Meters 2W	30W	6	$109.95
144P	2W	30W	6	$119.95
440	440MHz 3W	20W	6	$119.95
440P	3W	20W	6	$149.95

(P) Denotes with Preamplifier and Receive Filter

MIRAGE VHF/UHF AMPLIFIERS

Add a MIRAGE amplifier to your rig for 30 to 600 watts of BRUTE POWER! Models for 6 meters through 70 cm – Base, Mobile, Repeater or ATV operation. *Features:* • 12V DC • FM/SSB/CW modes • Continuous duty • 20dB GaAsFET preamp • Overdrive and High-temperature protection • Remote control capability

Model	MHz	input	out	amps	preamp	SALE
A-1015G	50-54	10W	150W	23	yes	$349.95
A-1035G	50-54	10W	350W	23*	yes	589.95
B-23 CLOSEOUT	144-148	2W	30W	5	no	99.95
B-23G	144-148	2W	30W	5	yes	154.95
B-215G	144-148	2W	150W	20	yes	339.95
B-108G	144-148	10W	80W	12	yes	204.95
B-1016G	144-148	10W	160W	25	yes	339.95
B-1030G	144-148	10W	300W	48	yes	619.95
B-1060G	144-148	10W	600W	52*	yes	989.95
B-2516G	144-148	30W	160W	25	yes	269.95
B-2530G	144-148	30W	300W	48	yes	619.95
B-2560G	144-148	25W	600W	52*	yes	989.95
B-5016G	144-148	50W	160W	24	yes	269.95
B-5030G	144-148	50W	300W	48	yes	599.95
B-5060G	144-148	50W	600W	45*	yes	989.95
C-22	222-225	2W	20W	5	no	$119.95
C-22G	222-225	2W	20W	5	yes	154.95
C-211G	222-225	2W	110W	20	yes	299.95
C-106G	222-225	10W	60W	12	yes	214.95
C-1012G	222-225	10W	120W	5	yes	299.95
C-1022G	222-225	10W	220W	20*	yes	589.95
C-2512G	222-225	30W	120W	20	yes	289.95
C-2522G	222-225	30W	200W	42	yes	589.95
C-5012G	222-225	50W	120W	20	yes	299.95
C-5022G	222-225	50W	240W	42	yes	569.95
D-15N	425-450	2W	15W	3	no	$169.95
D-26N	430-450	2W	60W	12	no	244.95
D-1010N	430-450	10W	100W	15	no	354.95
D-3010N	430-450	30W	100W	20	no	329.95
D-100-ATVN	430ATV	1W	52W	20	no	369.95
D-1010ATVN	430ATV	10W	100W	20	no	369.95

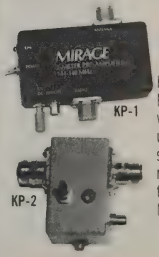
* at 28VDC N denotes Type-N connectors

RC-1 Remote Control Head • for all Mirage amplifiers except the B-23S, B-23G, C-22G and D-26N. **$45.00**

New!
MIRAGE COMPACT VHF/UHF AMPS

B-34 2M FM 2W in/30W out **$79.00**
B-34G 2M FM 2W/30W with preamp **$99.00**
BD-35 *Dual Band* 45W 2M/25W 440MHz..... **$179.95**

MIRAGE GaAsFET Preamps for 10, 6, 2, 1¼ m & 70 cm



KP-1
KP-2

High Gain, Ultra Low Noise GaAS FET preamps help you receive weak signals. Automatic switching up to 160 watts. KP-1 and KP-2 styles. Choose in-shack model or mast mount. Includes remote control model to reduce loss. See MIRAGE in Price List

See MIRAGE in the Price List

RMS VHF AMPLIFIER

▶ **PA-546** for the 140 to 155MHz range. Increases 1 to 3W FM/AM portables to 20 to 40W output. Input power is 0.35 to 5W, output is 45W maximum. Requires 12 to-15VDC @ 8A. 1½"h x 4¾"w x 4½"d, 14.5 oz. lbs..... **$129.99**

OWN THE WORLD'S BEST FOUR-WHEEL-DRIVE BASE STATION

Add a QMS Antenna Tuner System to your SSB.

$895.00

The QMS is an SGC Smartuner® automatic antenna coupler, an SG-303 extended full-range antenna, and the special exterior—waterproof— mounting package, all in one.

The QMS is that large box strapped to the side. We admit, at first glance it looks a little unusual. But once you use it, you'll find an almost unbelievable jump in reception and transmitting range (3-20 db). The QMS makes a typical HF-SSB perform like it's never performed before. Match it with a cutting edge SGC HF-SSB and it will blast holes through major mountain ranges and probably some laws of physics. Power and focus are everything in HF-SSB ham rigs. Buy this and own the best base station on–or off–the road.

Mounting the tuner and antenna on the outside reduces engine noise and eliminates power-draining antenna wire runs between the antenna and tuner.

QMS. It's the look of focused power.

LEARN TO LOVE THE LOOK

SMARTUNER® INSIDE

SGC

NO COMPROMISE COMMUNICATIONS

AMERICAN TECHNOLOGICAL LEADERSHIP MADE IN USA

1-800-259-7331

The SGC Building P.O. Box 3526 Bellevue, Washington 98009 USA (206) 746-6310 Fax: (206) 746-6384

YOU WANT AN HF-SSB.

YOU WANT A HAM RIG.

THIS IS WHAT YOU WANT.

This is it. The SG-2000 HF-SSB. With 644 ITU and ham frequencies –including SITOR telex channels– permanently etched into memory. Plus 100 user programmable frequencies and easy Weather-fax connections. A real *powerhouse* that produces a full 150 watts. The SG-2000 HF-SSB. Afloat or ashore, on the job or on the road, this is what you want. Call us.

SGC

NO COMPROMISE COMMUNICATIONS

AMERICAN TECHNOLOGICAL LEADERSHIP MADE IN USA

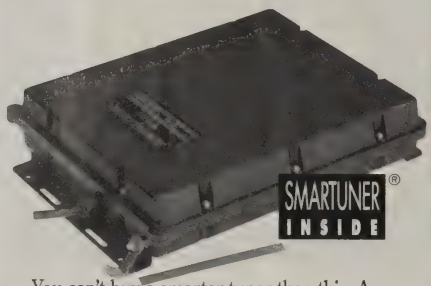
The SGC Building P.O. Box 3526 Bellevue, Washington 98009 USA
(206) 746-6310 Fax: (206) 746-6384
1-800-259-7331

BUY SMART

SG-230 Smartuner®

Antenna Coupler

SSB, AM, CW & DATA



You can't buy a smarter tuner than this. An automatic antenna coupler so intelligent it precisely tunes any length antenna –8 to 80 ft–in the HF band.

The Smartuner® automatically evaluates and switches 64 input and 32 output capacitance combinations, plus 256 inductance combinations in a "pi" network. The amazing result is over a half-million different ways to ensure a perfect match for your transceiver. And the most intelligent feature of all is that the Smartuner remembers the chosen frequency and tuning values, and will automatically reselect those values –in less than 10 ms, each time you transmit on that frequency.

The SG-230 Smartuner.® Buy smart.

MICROPROCESSOR CONTROLLED • NON-VOLATILE MEMORY • WATERPROOF B.I.T.E. INDICATOR • 1.8 TO 30 MHZ RANGE • 10 TO 150 WATTS INPUT POWER 10mS RETUNING TIME • 8 to 80 ft. ANTENNA (all types)

MADE IN USA

SGC

NO COMPROMISE COMMUNICATIONS

1-800-259-7331

SGC Inc. SGC Building P.O. Box 3526 Bellevue, Washington 98009
Tel: (206) 746-6310 Fax: (206) 746-6384

POWERTALK™

Stunning HF-SSB Receive Clarity With SGC DSP.

With SGC's new PowerTalk™, you'll intercept weak HF signals, increase signal clarity and eliminate unwanted noise. You'll hear SSB signals clearer and easier than ever before. PowerTalk™ combines the advanced receiver technology of SGC's exclusive ADSP™ (Automatic Digital Signal Processing) and SNS™ (Signal Noise Subtraction). Fast audio *and* visual tuning—a DSP command center with a high performance spinner knob and bright LED indicators. Plus all the outstanding features of the popular SG-2000: 644 ITU and ham frequencies, programmable memory, large LCD display and 150 watts of power out. PowerTalk™ is a true HF-SSB Power Tool. We have all the details. Call us *and hear more*.

SGC

1-800-259-7331

MADE IN USA

The SGC Building Box 3526 Bellevue, WA 98009 USA
(206) 746-6310 Fax: (206) 746-6384

SGC PowerClear™

"Add-On DSP"

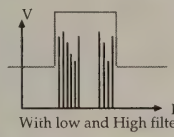
- ADSP™ & SNS™ for stunning audio clarity
- Audio & Visual fine tuning for swift interception of weak signals
- 8 preset and 7 user-programmable ADSP memories
- Can serve as a preamplifier

Mate any HF SSB unit to SGC's PowerClear DSP Control Unit for Enhanced Signal Clarity

SGC Catalog Number:70-07

PowerClear is *advanced ADSP and SNS technology* packed in a state-of-the-art control unit. PowerClear greatly increases signal clarity and drastically reduces noise, providing unsurpassed audio signal quality in any application. The listener will hear a remarkable improvement in recovered SSB audio and increased intelligibility of signals.

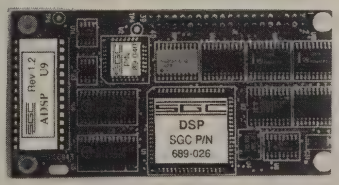
PowerClear technology cuts out unwanted reception and adjacent frequency interference from other stations, allowing clear audio recovery. And SNS digital circuitry analyzes the desired audio and undesired noise and then automatically reduces the background roar. And on data signals, PowerClear dramatically strips away interference.



With low and High filter

CENTER FREQUENCY FILTER

Bandpasss center frequency can be adjusted in 100Hz steps



The heart of the **PowerClear**—surface-mounted printed circuit board

An array of bright red and green LEDs provides precise visual tuning of high, low, and center frequency corners. Preset and user-programmable memories allow quick recall of ADSP, SNS, and high, low, center, and notch filter settings for easy operation.

MADE IN USA

SGC

The SGC Building 13737 S.E. 26th Street, Bellevue, WA 98005 USA
Box 3526, Bellevue, WA 98009 USA (206) 746-6310 or 1-800-259-7331
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REPLACEMENT BATTERY PACKS FOR ICOM · KENWOOD · STANDARD · YAESU HAND HELDS

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- ★ Overcharge protection.
- ★ Longer life.
- ★ Smaller size.
- ★ Lighter weight.
- ★ 50% - 100% increase in capacity over NICAD.
- ★ Environment friendly. Leave a clean Earth for our next generation.

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See Price List and Index for other MFJ models ...

New! MFJ-906 6m tuner w/wattmeter $74.95

New! MFJ-903 6-meter tuner $49.95

▶MFJ-16010 Random Wire Tuner *(top)* • Covers 1.8–30 MHz continously, and handles 200W PEP. Lets you operate all bands anywhere, from apartment, motel, camping, etc. with any transceiver using a random length wire.antenna. 2w" x 3"h x 4"d..... **$39.95**

▶MFJ-901B Versa Tuner • Covers 1.8–30 MHz continuously, and handles 200W PEP. Matches coaxial cable, random length wires and balanced lines (built-in 4:1 balun). Very popular for use between a transceiver and a final amplifier for proper matching and full drive, or as a mobile antenna tuner. The smallest Versa Tuner, 5"w x 2"h x 6"d..... **$69.95**

▶MFJ-945E Mobile Tuner • Covers 1.8–30 MHz and handles 300W PEP. Extends mobile antenna bandwidth and eliminates having to frequently stop, get out, and adjust your whip when making frequency changes. Matches coax cable only, has built-in cross-needle SWR bridge and wattmeter with 50/300 and 5/30W ranges. 8"w x 2"h x 6"d **$89.95**

▶MFJ-941E Versa Tuner II • Covers 1.8–30 MHz and handles 300W PEP. Matches everything! – coax fed dipoles, vees, whips, verticals, beams, random wires and balanced lines (built-in 4:1 balun). Built-in lighted Cross-Needle SWR/Power meter with 300/50W and 30/5W ranges. Eight position antenna switch to select two coax lines (direct or thru tuner), random wire/balanced line, or external dummy load. 10¾"w x 2⅞"h x 7"d... **$99.95**

▶MFJ-948 Deluxe Tuner • Covers 1.8–30 MHz and handles 300W PEP. Has all features of MFJ-941E, plus it has a larger lighted peak reading Cross-Needle SWR/Power meter with 300/50W & 30/5W ranges, and lamp switch **$119.95**

▶MFJ-949E Deluxe Versa Tuner II • Has the same power, tuning, and switching capability as MFJ-941E described above. In addition, it has a lighted peak reading Cross-Needle SWR/Wattmeter, and a built-in 300W 50 Ω dummy load. 10¾"w x 2⅞"h x 7"d..... **$129.95**

▶MFJ-962C Versa Tuner III • Covers 1.8–30 MHz and handles 1.5KW PEP. Matches coax, random wire or balanced line (built-in 4:1 balun). Lighted peak and average reading Cross-Needle SWR/Wattmeter with 200/2000W ranges. Six position switch for 2 coax lines (direct or thru tuner), random wire and balanced lines. 10¾"w x 4½"h x 15"d **$229.95**

▶MFJ-986 Differential-T Tuner™ • Covers 1.8–30 MHz, handles 3KW PEP, tunes most antennas. Features a broadband T-network with roller inductor and differential capacitor. Lighted peak/average reading Cross-Needle SWR/Wattmeter with 200/50W and 2000/500W ranges. inductor spinner knob with 3-digit turns counter, 6-position antenna switch and external dummy load switches, 4:1 balun. 10¾"w x 4½"h x 15"d..... **$269.95**

▶MFJ-989C Versa Tuner V • *Heavy-Duty!* Covers 1.8–30 MHz, handles 3KW PEP, matches everything! – coax fed antennas, random length wires, and balanced lines. Features a roller inductor with spinner knob and 3-digit turns counter. Lighted peak/average reading Cross-Needle SWR/Wattmeter with 200/2000W ranges, 50Ω- 300 watt dummy load, 4:1 balun, 6 position antenna switch, and tilt bail. 10¾"w x 4½"h x 15"d..... **$299.95**

▶MFJ-921 & MFJ-924 Tuners For base or mobile operation, matches a wide range of impedances. The MFJ-921 covers 2 meters and 220MHz, the MFJ-924 covers 440MHz only. Both are rated at 300W PEP and feature a built-in SWR/Wattmeter. 8"w x 2½"h x 3" **$69.95**

▶MFJ-931 Artificial Ground Eliminates problems caused by an inadequate ground. Resonates a random length wire to act as a tuned counterpoise. Improves efficiency. Covers 1.8–30MHz, RF ammeter tuning. 7½"w x 3½"h x 7"d. Not for coaxial fed antennas. **$74.95**

▶MFJ-1701 Antenna Switch Six positions. Rated for 2KW PEP or 1KW CW, 1.8–30MHz. SO-239 connectors. Unused positions are grounded. 10"w x 3"h x 1½"d. **$39.95**

▶MFJ-1700B Antenna/Transceiver Switch Select from 1-6 antennas and 1-6 rigs in any combination. Tuner, SWR meter, linear, etc. Can be left in line to operate with any combination. Handles 2KW PEP or 1KW CW, 1.8-30MHz. SO-239 connectors. Unused positions aregrounded. 10"w x 3"h x 1½"d..... **$69.95**

▶MFJ-1702B Antenna Switch 2 positions plus center ground, 50Ω. Rated to 500MHz with <0.2dB loss, 2.5KW PEP or 1 KW CW. >60dB isolation @ 300 MHz/>50 dB @ 450 MHz. Unused terminal grounds for lightning protection..... **$21.95**

▶MFJ-1702BN Low loss on UHF, with Type N connectors, good up to 1.1 GHz **$31.95**

▶MFJ-914 AutoTuner Extender Tunes any antenna with your automatic tuner. Extends range, no pre-tuning, ... **$59.95**

▶MFJ-212 Matchmaker Tune-up Device Tune your antenna without transmitting, 160 thru 6 meters . **$79.95**

▶MFJ-1704 Antenna Switch 4 positions, plus center ground. 50Ω-rated to 500MHz with <0.2dB loss. Handles 2.5KW PEP, 1KW CW, >50dB isolation @ 500MHz. Includes a replaceable lightning protection device that reduces lightning induced surges/static. **$59.95**

▶MFJ-1704N with Type N connectors .. **$69.95**

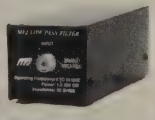
▶MFJ-250 Versaload A 50Ω, oil-filled dummy load. Provides low VSWR to 400MHz. Rated 1 KW CW or 2KW PEP for 10-minutes, with 1/2 rating for 20-minutes; 200W CW, 400W PEP continuous. 7½"h x 6⅝" dia. Includes oil .. **$49.95**

▶MFJ-250X same, without oil **$29.95**

▶DRY DUMMY LOADS An air cooled, non-inductive 50Ω resistor in a perforated metal housing. Handles full rated load for 30-seconds. with a de-rating curve up to 5-minutes.

▶MFJ-260C (HF/VHF) 300W, 1-650MHz, 2½"w x 2½"h x 7"d **$29.95**

▶MFJ-264 (UHF) Up to 650MHz, usable to 750MHz. Rated at 1.5KW for 10-seconds, 100W for 10-minutes. 3"w x 3"h x 7"d..**$59.95**



▶MFJ-704 Low Pass Filter Reduces TVI caused by harmonics generated by 1.8-30MHz transmitters falling in the TV bands. 52Ω, low insertion loss and high harmonic attenuation. Legal power, SO-239 connectors. 3"w x 3"h x 9"d ..**$39.95**

▶MFJ-1118 High Current Outlet Connects to 12VDC source and provides two pair of high current (total 30A) for HF or VHF rigs, and six pair of binding posts for other 12V station accessories. Has built-in voltmeter, switch and fuses. **$69.95**

▶MFJ-1116 DC Power Outlet Connects to 12VDC source and provides 8 HD-5 5-way binding posts for powering multiple items. Built-in voltmeter, switch and fuse. RF bypassed, outlets spaced for banana jacks 13½"w x 2¾ "h x 2½ "d **$44.95**

▶MFJ-1112 as above, 5 posts, no meter or switch **$29.95**

▶MFJ-259 HF/VHF SWR analyzer with RF Resistance Meter Covers 1.8-170MHz. Has a built-in 10-digit LCD frequency counter and vernier tuning. Automatic!, just connect antenna, set analyzer to frequency and read SWR directly. Monitor SWR changes as you make adjustments. Conveniently measures RF feedpoint resistance up to 500Ω at minimum SWR. Separate BNC input allows use as a frequency counter. Accurate, 1 ppm 10MHz crystal time base; .01, .1, 1 and 10 sec. gate times. Uses 6 AA cells or 110V AC with MFJ-1312B adapter. 4"w x 2½" x 6¾" **$219.95**

▶MFJ-29B Carrying pouch for 259 with window and control knob holes **$24.95**

▶MFJ-66 Dip meter adapter for MFJ-249/259, Two coils for coverage of 1.8–30MHz and 30–170 MHz **$19.95**

▶MFJ-812B 2 meter/220MHz SWR/Wattmeter Forward and reflected power (3/300W), and SWR. Reads SWR from 14 to 220MHz & Field Strength. 4½"w x 2¾"h x 3"d.**$29.95**

▶MFJ-815B SWR/Wattmeter (left) Covers 1.8–30MHz. Lighted Cross-Needle meter simultaneously monitors peak/average, forward/reflected power and SWR without adjustments. Two ranges: 200W/2000W forward, and 50/500W reflected. 7¼"w x 4½"h x 3½"d. Llight requires 12VDC **$69.95**

▶MFJ-817 Same as MFJ-815B but covers 144 and 440MHz. Power ranges: 200/20W forward, and 50/5W reflected ...**$74.95**

▶MFJ-864 HF/VHF/UHF SWR/Wattmeter (right) Covers 1.8 to 60,144 and 440MHz. Separate directional couplers and connectors for each band. Reads forward /reflected power simultaneously on cross-needle meter with 30/300W ranges **$79.95**

▶MFJ-862 VHF/UHF SWR/Wattmeter Same as MFJ-864 but covers 144, 220 and 440MHz bands **$49.95**

▶MFJ-860 HF SWR/Wattmeter Same as MFJ-864 but covers 1.8 to 60 MHz **$39.95**

MFJ CW Transceivers Single band, CW only 5 models. Cmpact portable, up to 5 watts output. Features include: superhet receiver, speaker, vernier tuning, 8-pole crystal filter, RIT, AGC, semi/full break-in, sidetone. 12-15 VDC. 6"wx 6½"d x 2½"h.

▶9015 (15M) 21–21.2 MHz
▶9017 (17M) 18.068–18.110MHz
▶9020 (20M) 14–14.075MHz
▶9030 (30M) 10.1–10.15MHz
▶9040 (40M) 7–7.15MHz
$169.95

▶MFJ-9420X 20-meter SSB Travel Radio Features 12W output, a hot receiver and potent speech processor.Smooth reduction-drive VFO tuning, S-meter. 12VDC. 2½"x 6½" x 6" **$219.95**

▶MFJ-9440X 40-meter SSB Travel Radio w/mic **$219.95**

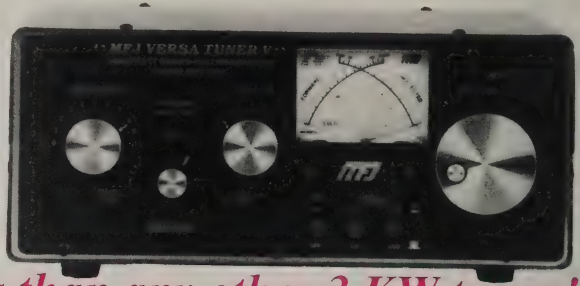
▶MFJ-9406X 6-meter SSB Adventure Radio Features 10 watts PEP, MFJ's Constant Current™ speech processing and VFO tuning. A crystal-mixed single conversion superhet with low-noise preamp digs into the noise floor to capture weak signals. If there's a signal there, you'll hear it! 12VDC. 2½"h x 6½"w x 6"d.....**$239.95**

▶MFJ-1786 Hi-Q Loop Antenna Covers from 10 to 30MHz, continuous. Tunable from controller that features an SWR/Wattmeter and auto band selection. Only 36" diameter, installs almost anywhere! Uses 50Ω coax only, no separate control cable needed **$269.95**

MFJ-989C 3 KW Antenna Tuner

More hams use MFJ-989s than any other 3KW tuner in the world! Why? . . . Because MFJ uses super heavy duty components to make the world's finest 3 KW antenna tuner . . .

$299.95 MFJ-989C AES PRICE



- *New for 1996 -- MFJ AirCore™ Roller Inductor*
- *Super Heavy Duty Components*
- *Handles 3000W PEP SSB*
- *peak/average Cross-Needle SWR/Wattmeter*
- *Antenna Selector • Balun • Built-in Dummy Load*
- *Convenient Flip Stand • Made in the U.S.A.*
- *1 year Unconditional Warranty*

More hams use MFJ-989s than any other 3 KW tuner!

MFJ uses super heavy duty roller inductor, variable capacitors, antenna switch and balun to build the world's most popular 3 KW antenna tuner.

The rugged MFJ-989C handles 3 KW PEP SSB and covers 1.8 to 30 MHz, including all MARS and WARC bands.

MFJ's new 1996 AirCore™ Roller Inductor, three-digit turns counter and spinner knob gives you exact inductance control for absolute minimum SWR.

You can match dipoles, verticals, inverted vees, random wires, beams, mobile whips, shortwave -- nearly any antenna. Use coax or balanced lines.

You get everything you've ever wanted in a high power, full featured, antenna tuner -- widest matching range, lighted Cross-Needle SWR/Wattmeter, antenna switch, built-in dummy load, balun, convenient flip-stand -- all in a sleek, compact cabinet.

MFJ builds the world's most popular 3 KW antenna tuner using these **super heavy duty** *components . . .*

MFJ *AirCore*™ Roller Inductor

MFJ's exclusive *super heavy duty AirCore*™ Roller Inductor has an air core that can't burn up! You get ultra high-Q, the lowest loss, highest efficiency and highest power handling of any roller inductor in ham radio.

MFJ's exclusive *Self-Resonance Killer*™ keeps potentially damaging self-resonances away from your operating frequency.

Large, self-cleaning wiping contact gives excellent low-resistance connection without arcing or contact burning.

A *solid* 1/4 inch brass shaft with self-align bearings gives smooth non-binding rotation.

Some competing "legal limit" tuners use a lossy, low Q, solid core with erratic electrical contacts and have potentially damaging self-resonant frequencies. This can cause excessive heating and can destroy the core.

Massive Transmitting Capacitors

Look inside the MFJ-989C . . . you'll see two *super heavy duty* transmitting variable capacitors that can handle 6000 volts. Smooth polished plates and extra wide (0.27 inch) stator plate spacing give you arc-free operation.

Specially shaped plates give low minimum capacitance when unmeshed. This and a hefty 250 pf maximum give you an extremely wide matching range -- even on 160 and 10 Meters.

The nearest competing "legal limit" tuner has variable capacitors physically *much smaller* than the MFJ-989C's. Theirs is rated at 4500 volts -- a full *25% less* than the MFJ-989C. Theirs is more likely to arc -- *not what you want in a "legal limit" tuner!*

Super Antenna Switch

The MFJ-989C *super heavy duty* antenna switch is made of *two* individual *ceramic* wafers wired in parallel. Extra wide spaced, heavy duty contacts handle extreme voltages and currents. *We've never burned one up!*

You can select two coax antennas (directly or through tuner), balanced line/random wire, or built-in dummy load.

3 KW Current Balun

MFJ's *super heavy duty* 3 KW *current* balun for balanced lines uses *two* giant 2 1/2 inch toroid cores. It's wound with *Teflon®* wire connected to high voltage *glazed ceramic* feedthrough insulators.

The MFJ-989C lets you safely operate high power into balanced feedlines without core saturation or voltage breakdown.

Some "legal limit" tuners have inferior *voltage* baluns with smaller diameter toroid cores and use soft plastic feedthrough insulators that can arc and melt.

More reasons why the MFJ-989C is the world's finest 3 KW tuner . . .

Built-in Dummy Load

A full-size 300 watt non-inductive 50 ohm dummy load is built into the MFJ-989C.

You'll find it handy for transmitter tuning, testing and repairing your rig, setting power level, adjusting your mic gain and more.

Some "legal limit" tuners *don't* have a built-in dummy load. They want *you* to pay for an external dummy load that just gets in your way.

Lighted Cross-Needle Meter

MFJ's lighted Cross-Needle SWR/Wattmeter makes tuning quick and easy. You can monitor SWR, forward and reflected power *simultaneously*. Read both peak and average power in two power ranges.

Sleek and Compact

The compact MFJ-989C slides right into your operating position -- you'll hardly know it's there. It's just 10 3/4x4 1/3x15 inches. *Do you really want a bulky "legal limit" tuner that's bigger than your amplifier?*

Superior Cabinet

The MFJ-989C's *premium*, low-profile all-aluminum cabinet has a sub-chassis that adds strength and RFI protection.

Every cabinet is chemically treated and has a tough, scratch-proof vinyl cladding -- not paint that can scratch or chip off. You won't find a tougher, longer-lasting finish anywhere.

Detailed logging scales and legends are *permanently* silk-screened on *real* aluminum front and back panels -- they aren't decals or glued-on paper strips that can peel off.

You get a convenient flip stand that tilts your MFJ-989C for easy operation.

Superior Construction

Every MFJ-989C uses PEM nuts (*not* self-tapping screws), wing-nut for ground post (*not* a cheap nut), fire-retardant epoxy glass PC board (*not* canvas based), heavy guage wire throughout (*not* small guage), locking compound on nuts/bolts (*not* loose hardware).

No Matter What™ Warranty

Every MFJ-989C is protected by MFJ's famous one year *No Matter What*™ unconditional warranty. We will repair or replace your MFJ-989C (at our option) *no matter what* for a full year.

Others may give you a *limited* warranty on defects in material and workmanship.

But what do you do if it burns up and they say, "Sorry, your *limited* warranty does not cover that?"

Outstanding Customer Service

Only MFJ gives you a *direct* toll-free technical help line answered by *electronic technicians* who are *experts* in antenna tuners -- just call toll-free 800-647-TECH(8324).

We're here to help keep your MFJ-989C performing flawlessly -- *no matter how long*

AMATEUR ELECTRONIC SUPPLY, INC.
5710 W. Good Hope Rd., Milwaukee, WI 53223

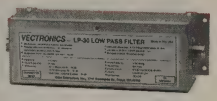
AES

Milwaukee, WI	800-558-0411
Wickliffe, OH	800-321-3594
Clearwater, FL	888-226-7388
Orlando, FL	800-327-1917
Las Vegas, NV	800-634-6227

MFJ . . . the world's most trusted name in antenna tuners!

Valor "The Clear Connection" VECTRONICS Amateur Radio Products

TVI FILTERS



▶LP-30 Low Pass Filter Suppress TV interference from HF transmitters operating below 30MHz. Use between transmitter and the antenna or tuner to provide up to –70dB attenuation of harmonics that fall within the TV bands. For 52Ω coaxial systems, up to 30MHz, rated 1500W continuous **$59.95**

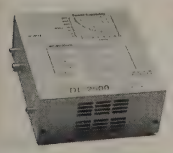
▶LP-2500 Rated for 2500W continuous RF power.... **$119.95**

▶HPF-1 High Pass Filter Installs at the TV set antenna terminals. Reduces television interference caused by overload and harmonics from HF transmitters operating below 30MHz. Low loss in the TV passband (52 to 550MHz). Unique shield-breaking circuit prevents antenna cable from acting like an HF antenna. For 300Ω balanced system and supplied with baluns with Type F connectors for 75Ω unbalanced..... **$17.95**

DUMMY LOADS

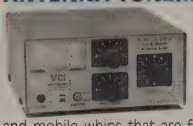
▶DL-300M Dry Dummy load Simulates an accurate 50Ω antenna up to 150 MHz.Test your transmitter without radiating a signal on the air. Power handling curve rated at 300W for 15-seconds, down to 100W for 40 seconds. VSWR <1.3:1 at 150MHz. 5"h x 2"d x 2⅞ "h, 8 oz..... **$64.95**

▶DL-650M Dry Dummy load Good all the way up to 650MHz. Power handling curve is rated at 1500W for 10-seconds, down to 100W for 10-minutes. VSWR <1.3:1 at 500MHz.. **$64.95**



DL-2500 High Power Dry load A fan cooled heavy-duty load for up to 150MHz. Power handling curve rated at 2500W for 1-minute, down to 500W for 10 minutes..... **$169.95**

ANTENNA TUNERS



▶VC-300M Mobile Tuner Compact, lightweight and economical for base or mobile. Compatible with almost any antenna, including vertical, dipoles, inverted Vees, beams and mobile whips that are fed by coaxial cable. Also tunes open wire feeders, balanced lines, or single wires. Designed to provide matching from 1.8 to 30 MHz with a 300W continuous RF power capability. The dual-movement cross-needle meter simultaneously monitors RF power output and SWR. Compact – 7¼"w x 3½"h x 8¾"d, 2½ lbs **$119.95**

▶VC-300DLP Antenna Tuner A quality, economical tuner designed to provide matching from 1.8 to 30 MHz with a 300W continuous RF power capability from 3.5 to 30MHz (150W on 1.8MHz). Built-in dummy load, dual-movement cross-needle peak or average reading meter with light. Compatible with almost any antenna including verticals, dipoles inverted Vees, beams and mobile whips that are fed by coaxial cable, and balanced lines or single wire; a 4:1 balun and six position antenna selector switch are built-in. 10¼"w x 9½"d x 3½"h, 3½ lbs..... **$144.95**

▶VC-300D Antenna Tuner Same function and specs as the VC-300-DLP above, but has the additional capability to show a peak power indication by using an instantaneous responding digital bargraph display. A LEVEL and DELAY control has been added to calibrate the display to the meter, and to vary the delay response..... **$186.95**

▶HFT-1500 Antenna Tuner Rated for 1500W (3KW PEP) from 1.8 to 30MHz; 1000W (2KW PEP) on 160 and 10 meters. Cranked continuous roller inductor with a turns counter and vernier tuning on both the antenna and input capacitors. Dual-movement cross-needle meter shows average forward and reverse power and SWR; a 21-segment bargraph indicates peak power. For accuracy, a true RF directional coupler sensor is used for the wattmeter. Includes a built-in 4:1 balun for balanced antenna systems and six-position antenna selector switch. 5½"h x 12½"w x 12"d, 10 lbs..... **$389.95**

COMET

▶COMET WS-1M Window Mounting Bracket Perfect for vans and mini-trucks with pop-out windows, rental cars, etc. A multi-adjustable mounting bracket includes 11½ ft. of quality coaxial cable with gold-plated UHF connectors. Suction cups on the inside as well as outside of the bracket, along with heavy-duty construction allows for mounting gain-type antennas such as the Comet B-20 or Comet SB-5 dual-bander models, and others..... **$64.95**

▶COMET HA-4S HF Mobile Antenna Features switching between 4 HF bands without changing coils or plugs. Standard coils include 40, 15, 12, 10M (20M optional). Compact and lightweight, only 1 lb, 14 oz, and just 4 ft. 10 in. tall which allows for more convenient HF mounting options than conventional HF mobile antennas. Mounts on a trunk-lip style bracket such as the Comet RS-820 (shown), or a rain gutter mount such as the RS-80. High q uality construction includes a gold-plated PL-259 at the base, and a threaded collar that unscrews to expose a hinged base, allowing a 90 degree fold-over for garaging. **$179.95**

NCG

▶Power Pocket Portable or extra power for Emergencies, Hamfests, Hiking, etc. A 12V/2A/H sealed lead-acid rechargeable battery provides extended talk time, up to 6 times longer than standard battery packs, and can be recharged to 100% anytime without the memory effect. Compact carrying case with belt loop and shoulder strap, and the entire pack weighs only 30 oz.Your radio plugs into the included female adapter socket. Complete recharge in 6 to 8 hours, with the supplied 110VAC to 12V charger. 3½"w x 1"d x 6½"h, 30 oz..... **$66.95**

NCG Light-weight boom microphone and earpiece with a dual action PTT/STL. Press the button for push-to-talk, or slide the button for slide-to-lock convenience. An alternative to cumbersome headset boom microphones. Good transmit/receive audio.

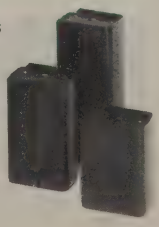
▶MH-900P Icom, Standard Yaesu and Alinco version..... **$39.95**
▶MH-900PK Kenwood version.. **$39.95**

NCG Light-weight boom microphone/headset for handheld radios. Conveniently folds-up for easy storage. Boom microphone pivots to allow left or right ear speaker position. PTT switch, 36 in. cord.

▶MP-28 Icom, Standard Yaesu and Alinco version..... **$39.95**
▶MP-28K Kenwood version .. **$39.95**

PERIPHEX

POWER PACKS for Longer QSOs



Spend less money for longer QSOs with power packs from Periphex. Replacements for most manufacturers plusss a 12 month warranty. These Super Packs feature short circuit protection and overcharge protection, and a 12 month warranty. These and other models available for late model ICOM Handhelds.

SEE PRICE LIST

RANGER 10 Meter TRANSCEIVERS

NOVICE TECHNICIAN + GENERAL ADVANCED EXTRA...

Four models provide loads of fun for everyone! Operate local communications as well as frequent World-wide DX – Base or Mobile!

Participate in Club Events, Nets, Repeaters, Emergency Communications and more!

✔ **BAND:** 10 meters only; 28.000 to 29.699 MHz
✔ **MODES:** LSB, USB, CW, AM, FM
✔ **POWER:** **RCI-2950** 25W SSB – 8W AM, FM & CW
RCI-2970 100W SSB – 50W AM, FM & CW
RCI-2980 25W SSB – 50W AM, FM & CW
RCI-2990 100W SSB – 50W AM, FM & CW

Additional RCI-2950/2970 Features: • Mobile Operation • RIT • Squelch • Noise Blanker • RF Gain Control • RF Power Out Selector • Repeater/Offset Switch • Channel Selector • Scanning • Memory Channel Scan • 4-step LCD Brightness Control • PA Mode • External Speaker Jack • Memory Back-up • Multi-function LCD Display • 13.8VDC

▶RCI-2950 2⅞"h x 7⅞"w x 10⅞"d, 4¼ lbs **$259.95**
▶RCI-2970 3¼"h x 7⅞"w x 10⅞"d, 7¼ lbs..... **$369.95**

Addditional RCI-2980/2990 Features: Both are Base Stations with built-in 120 VAC power supply. They have most of the RCI-2950/2970 features and more!

▶RCI-2980 22"w x 17"h x 11"d, 36 lbs **$419.95**
▶RCI-2990 23"w x 18"w x 11"d, 38 lbs..... **$629.95**

SWR & Power Meters...

BIRD Electronic Corporation

Carrying case, dummy load, elements and connectors are optional.

Case will hold three additional elements (6) instead of dummy load as shown.

▸**43 THRULINE® Wattmeter** Measures incident and reflected power in coaxial transmission lines with 5% of full scale accuracy; insertion VSWR is less than 1.05. Comprised of a line section, and a direct-reading meter with expanded scales in 25, 50 and 100 units. Rugged aluminum case. Supplied with SO-239 Quick Change (QC) type connectors; optional UHF, N and BNC types available. Optional plug-in elements (see table below) provide a wide choice of frequency ranges from 2–1000MHz, with power levels up to 5000W (2–30MHz) and up to 1000W (30–1000MHz). Select one or more elements now, add others as needed. 6⅞"h x 5⅛"w x 3⅝"d, 3 lbs **$250.00**

▸**43P Peak Reading Wattmeter Meter** Same versatile functions as the BIRD 43, but includes switch selectable Peak Reading (PEP) capability. Uses the same plug-in elements, QC connectors and accessories.Uses two 9V batteries **$377.00**

▸**4431 THRULINE® Wattmeter** Same as the 43, but with a built-in variable RF signal sampler to provide an adjustable low level signal sample for counters, scopes, analyzers, etc ..**$442.00**

TABLE 1 Standard BIRD Elements

Power Range	2-30	25-60	50-125	100-250	200-500	400 1000
	Frequency Bands (MHz)					
5 watts	—	5A	5B	5C	5D	5E
10 watts	—	10A	10B	10C	10D	10E
25 watts	—	25A	25B	25C	25D	25E
50 watts	50H	50A	50B	50C	50D	50E
100 watts	100H	100A	100B	100C	100D	100E
250 watts	250H	250A	250B	250C	250D	250E
500 watts	500H	500A	500B	500C	500D	500E
1000 watts	1000H	1000A	1000B	1000C	1000D	1000E
2500 watts	2500H					
5000 watts	5000H					

TABLE 2 Low-Power BIRD Elements

1 watt	Cat. No.	2.5 watts	Cat. No.
25-30 MHz	025-1	25-30 MHz	025-2
30-35 MHz	030-1	30-40 MHz	030-2
35-40 MHz	035-1	40-50 MHz	040-2
40-50 MHz	040-1	50-60 MHz	050-2
50-60 MHz	050-1	60-80 MHz	060-2
60-80 MHz	060-1	80-95 MHz	080-2
80-95 MHz	080-1	95-150 MHz	095-2
95-125 MHz	095-1	150-250 MHz	150-2
110-160 MHz	110-1	200-300 MHz	200-2
150-250 MHz	150-1	250-450 MHz	250-2
200-300 MHz	200-1	400-850 MHz	400-2
275-450 MHz	275-1	800-1000 MHz	801-2
425-850 MHz	425-1		
800-1000 MHz	801-1		

BIRD Variable RF Signal Samplers

Stand alone wide-range, THRULINE® RF coupling probes for spectrum analysis, RF signal observation on a scope, or frequency counting and control.

See Price List for BIRD accessory pricing ...

YAESU SWR/Power Meters

▸**YS-60** Monitors Average (CW) and Peak (SSB) transmitter output, and VSWR of antenna systems. Covers 1.6 to 60MHz up to 2KW with meter ranges of 20/200/2000W. 50Ω, SO-239 connectors. Requires external 12V DC for meter lamps and internal op amplifier circuits. 4¾"w x 2¾"h x 3½"d, 1½ lbs **$129.95**

▸**YS-500 SWR/Power Meter** Similar to YS-60 above, but covers 140 to 525MHz, and up to 200W with meter ranges of 4/20/200W. 12V not required **$109.95**

COMET SWR/Power Meters

Three models with separate meter and RF sensor with 6 ft. long cable. Lighted, cross-needle meter with three selectable power ranges, shows forward and reflected power, and SWR simultaneously, plus indicates DC voltage from power source. 50Ω, 12VDC. 4¾"w x 3⅛"h x 1¾"d, 1 lb, 4 oz.

▸**CMX-1** 1.8–60MHz; 30, 300, 2000W ranges **$189.95**
▸**CMX-2** 1.8–200MHz; 20, 50, 200W ranges **179.95**
▸**CMX-3** 140–525MHz; 20, 50, 200W ranges **169.95**

DIAMOND SWR/Power Meters

Five models, all measure Power and SWR with 5–10% of full scale accuracy. illuminated meter, sensor switch and LED indicator. Power ratings listed below are for intermittent operation. For continuous mode (CW, FM, etc.), ratings vary with frequency. All have SO-239 connectors, except the SX-1000 which has a Type-N. The SX-600 and SX-1000 are dual band. 12VDC required for displays. 6"w x 2½"h x 4"d, 2 lbs.

▸**SX-100** 1.6-60MHz, 30/300/3000W ranges **$149.95**
▸**SX-200** 1.8-200MHz, 5/20/200 ranges **109.95**
▸**SX-400** 140-525MHz, 5/20/200W ranges **129.95**
▸**SX-600** 1.8-160MHz and 140-525MHz, 5/20/200W ... **179.95**
▸**SX-1000** 1.8-160MHz and 430-1300MHz, 5/20/200W .. **249.95**

DAIWA SWR/Power Meters

▸**CN-101** Covers 1.8–150MHz, rated at 1500W from 1.8–60MHz and 1000W at 144MHz with 15/150/1500W RMS or PEP power ranges. Cross-needle meter shows forward/reverse power and SWR simultaneously; ±10% full scale accuracy. SO-239 connectors. 6"w x 3"h x 3⅞"d, 1½ lbs........ **$89.95**

▸**CN-103M** Same as CN-101, except 140 to 525MHz coverage and rated at 200W with 20/200 watt meter ranges . **$99.95**

▸**NS-660PA SWR Meter (left)** Covers 1.8–150MHz, with 30/300/3000W ranges. Cross-needle meter shows RMS or PEP forward and reverse power, and SWR simultaneously. 50Ω, SO-239 connectors. 7¼"w x 3¾"h x 5⅞"d, 2¾ lbs **$199.95**

▸**DP-830 Digital SWR Meter (right)** Covers 1.8–150 and 149–525MHz. Fully automatic! Large LCD displays forward RMS or PEP power, and SWR by digits and bargraph, simultaneously. Power: 1.5KW (1.8–150MHz) & 150W (140–525MHz). SWR beep tones, clock functions displays 4 different times, SO-239 connectors. 5⅞" w x 2½"h x 4⅜"d, 2¼ lbs. **$319.95**

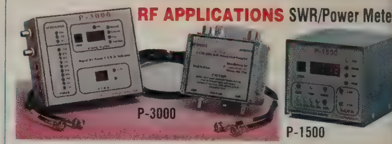
▸**DP-820 Digital SWR Meter** Same as DP-830, except covers 140 to 525MHz, 150W and no clock function........ **$249.95**

▸**CN-410M Compact SWR and Power Meter** For mobile or base use. Covers 3.5–30MHz, rated at 150W with 15/150W forward & 50W/5W reflected power ranges. The back-lighted, cross-needle meter shows forward/reverse power and SWR simultaneously. SO-239 connectors, mounting bracket. 2¾"w x 3"d x 3⅞"d, 10 oz........ **$89.95**

▸**CN-460M** Same features and rating as CN-410M, except covers the 140–450MHz range........ **$89.95**

▸**CN-465M** Same features as CN-410M/460M, except covers 140 to 450MHz and rated at 75W with 15/75W forward and 5/25W reflected ranges. **$89.95**

RF APPLICATIONS SWR/Power Meters



▸**P-3000 HF Power/VSWR Indicator** Microprocessor based for fast, accurate Power and VSWR readings from 1.8 to 30MHz, without adjustments or calibration (• features below) **$299.00**

• ***Peak Digital Power Display*** Range is 10 to 2950 watts with four selectable parameters: Forward Power; Reflected Power; True Power and Volts

• ***VSWR Display with Alarms*** Indicates VSWR from 1 to 19:1 with no calibration required. When VSWR exceeds 3:1 an alarm LED signals on the display unit and the protection relay de-energizes to disable the amplifier control circuit (if desired).

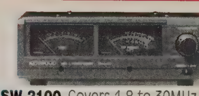
• ***Instantaneous Power Bargraph*** Auto-ranging. Ten LEDs indicate 10% to 100% in 120, 100 & 2000 watt ranges. 100 millisecond response time makes tuning & SSB/CW monitoring easy.

• ***Separate Remote Directional Coupler*** Rated at 1,500W continuous can be located up to 6 ft. away from the display unit. 53Ω, SO-239 connectors. Requires 12 VDC @ 250mA. Display: 6½"w x 5¼"w x 2¼"d; Coupler: 4½"w x 3¾"h x 2¼"d. 6 lbs total

▸**P-1500 Digital RF Power/V.S.W.R. Indicator** Covers 1.8 to 30MHz, rated at 1500 watts continuous. Built-in coupler. Four digit LED display, autoranging bargraph. VSWR status lights. Requires 12V DC @ 100 mA. 4"w x 3½"h x 4"d, 4 lbs **$219.95**

▸**P-3000-P** 12V adapter **$12.95** • **P-1500-P** 12V adapter **$16.95**

KENWOOD SWR/Power Meter



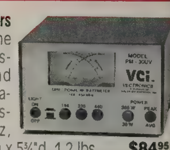
▸**SW-2100** Covers 1.8 to 30MHz, dual meters simultaneously display RF power up to 2kW and VSWR. Ranges: 0-200W and 0-2000W Requires 30W RF for SWR measurement. 52Ω, SO-239 connectors. 8"w x 2⅝"h x 3⅜ "d, 1.9 lbs **$159.95**

MIRAGE SWR/Power Meters

Four models, all measure RMS and peak forward and reverse power and SWR, directly. Negligible insertion loss. Remotable coupler, SO-239 connectors. Requires 9V battery, 9 to 13.6V DC, or AC adapter. Low battery indicator. 5¾"h x 4½"w x 5¾"d, 3½ lbs.

▸**MP-1** 1.8 to 30 MHz; 25, 200, 2000W ranges........ **$209.95**
▸**MP-2** 50 to 200MHz; 50, 500, 1500W ranges........ **209.95**
▸**MP-3** 425 to 450MHz; 5, 50, 500W ranges........ **239.95**
▸**MP-4** 1260 to 1300MHz; 1, 10, 100W ranges **259.95**

VECTRONICS SWR/Power Meters



▸**PM-30HF** Looks similar to the model shown. Measures and displays RMS or PEP forward and reflected power, and SWR simultaneously on an illuminated cross-needle meter.1.8 to 60MHz, 300/3000W ranges. 5⁵⁄₁₆w"h x 3½"h x 5¾"d, 1.2 lbs....... **$84.95**

▸**PM-30UV UHF/VHF SWR/Power Meter** (shown) Same features as HF but covers 144, 220 and 450MHz bands..... **$84.95**

VANCO *Low Cost* Meters

▸ **SWR-1 Field strength/SWR meter Range:** 3.5 to 150MHz; **Impedance:** 52Ω; **SWR:** 1:1–3:1; **Accuracy:** ±5%; **Meter Sensitivity:** 300uA; **Antenna:** 5" whip; **Size:** 6"h x 2"w x 2⅞"d, 14 oz........ **$19.95**

▸**SWR-2 SWR/Power meter Frequency Range:** 1.7 to 150MHz; **Impedance:** 50–52Ω; **SWR:** 1:1–3:1; **RF Power:** 0–10 and 0-100 watts; **Accuracy:** (SWR)±5% (Power) 10%; **Meter Sensitivity:** 200 uA; **Antenna:** 5" whip; **Size:** 6"w x 2"h x 2"d, 14 oz........ **$29.95**

▸ **SWR-3 SWR meter Frequency Range:** 1.7 to 30MHz; **Impedance:** 50–52Ω; **SWR:** 1:1–3:1; **Accuracy:** ±5%; **Meter Sensitivity:** 300 DC uA; **Dimensions:** 2½" x 3½" x 3", 6 oz. . **$14.95**

BK PRECISION
MAXTEC INTERNATIONAL CORP.

▶**B&K 390** Test Bench™ (left) A multi-function multimeter. with AC/DC Voltmeter, AC/DC Ammeter, Ohmmeter, Capacitance Meter, 500kHz Frequency Counter and Temperature meter in one package. 0.1% DCV accuracy; Analog bargraph; Auto/manual ranging; 4,000 count LCD display; Relative mode; Min-max average; Memory; Audible continuity; Data hold. 7½" x 3½" x 1½", 17 oz. **$134.95**

▶**B&K 2860A** Digital Multimeter (center) Rugged construction with water resistant case. AC/DC Voltmeter AC/DC Ammeter (20A); Ohmmeter; Audible Continuity Check; Diode Test. 3½ digit, 0.8" LCD. 6⅞" x 3⅝" x 1¼", 12 oz. **$84.95**

▶**B&K 2704A** Digital Multimeter (right) Handy for the tool kit! Measures: DCV 200mV-1000V; ACV 200mv-750V; DCand AC current to 10A; Ohms, 0.1Ω to 20MΩ; Capacitance to 20uF; and Transistor gain. 5¾ " x 3" x 1¼", 13 oz. **$49.95**

▶**B&K 878** Dual-Display LCR Meter with Statistical Functions Excellent for sorting parts. Displays measured value and Q or dissipation factor and remembers minimum and maximum values while keeping a running average of tested component values. Relative mode displays difference between the measured and reference component values. Tolerance mode "beeps" to indicate measured components outside a 1%, 5% or 10% tolerance around a reference value. Selectable, 120Hz or 1kHz. 1½" x 3½" x 7½", 14 oz. .. **$219.95**

▶**B&K 815** Parts Tester (center) Tests transistors, SCRs, diodes, LEDs and batteries under actual load conditions. Capacitance 0.1pF-20mF; Resistance 0.1Ω-20MΩ, 26 ranges. Big 0.8" LCD display. 6⅞" x 3⅝" x 1¼", 12 oz. **$84.95**

▶**B&K 4011** 5 MHz Function Generator (right) Generates sine, triangle, square, pulse and ramp waveforms. TTL and CMOS Pulse outputs. 9¼" x 3¼" x 11¼", 6 lbs..... **$239.95**

General Purpose Power Supplies

Lab Quality – reverse polarity, overload thermal and short circuit protected. Tight regulation, low ripple and conservatively rated for continuous operation at maximum rating.

▶**Model 1686** High Current (left) Output: 3 to 14VDC @ 2.5 to 12A. Continuous 12A duty at 13.8V DC without overheat. Reverse polarity, overload and short circuit protection. Current limiting. Connect two in parallel to double the current, or two in series to double the voltage. Voltage and current limiting adjusments. 5½" x 5¾" x 12", 12 lbs **$169.95**

▶**Model 1651** Triple Output (right) Output: Two 0 to 24 VDC @ 0.5A; One fixed 5V @ 4A, continuous. Independent tracking, adjustable current limiting. Short circuit, overload, reverse polarity protected. 3¾" x 9½" x 7½", 11 lbs **$359.95**

▶**Scopes and Counters** For design, service or hobby. Scopes ranging from a 20MHz analog dual-trace unit to a versatile digital storage model. Multi-function counters built for continued high accuracy over a wide range of frequencies.

See the Price List for the complete B&K listing

DIGIMAX Frequency Counters

▶**D-1200/D-612** Frequency Counters Ideal for solving difficult bench and field problems involving complex PLL, TV Tuner, VTR, and computer circuits. – plus, they can help to keep your QSOs on the correct frequency! Both models meet FCC land mobile, broadcast, and telecommunications requirements. 9 digit LED, 0.5"- 7 segment display, leading zero suppression for error-free readings. Built-in 10 MHz, 0.1 PPM (20°-40°C) 10MHz proportional oven. When checking audio tones, the built in audio multiplier in the D-1200 will resolve 1/1000th Hz in 10 seconds, 1/100Hz in 1 second., and 1/10 Hz in 0.1 second. The. D-612 resolves 1 Hz in 1 second.and 1/10 Hz in 10 seconds. The D-1200 also has a prescale input sensitivity control and the D-612/D-1200 includes a 1.2 GHz prescaler. Both operate from exernal. 8 to-14.5V DC @ 200-500ma., 6 internal "C" cells, 115V with optional AC adapter or optional rechargeable battery. 3¼"h x 8½"w x 9"d. • D-612 does not include carrying handle as pictured.

▶D-612 **$229.95** • ▶D-1200 **$269.95**

▶**D-500/D-510A** Frequency Counters Excellent accuracy and high reliability, make these units the perfect choice for the bench, tool box, or ham shack. The D-500 covers 50Hz to 512 MHz and will resolve 1 Hz to 50 MHz and 10 Hz to 500 MHz; D-510A covers 50 Hz to 1 GHz. and will resolve 10 Hz to 1 GHz. 8 digit LED, 0.5" high seven segment display, leading zero suppression for error-free readings. Contains a 1 PPM (17° to 35°C) TXCO time base. Operates from external 8-14.5V DC @100-250ma., 115V with optional AC-12 adapter or optional rechargeable battery pack. 1½"h x 5"w x 5¼"d.

▶D-500 **$139.95** • ▶D-510A **$159.95**

Optional Accessories

▶**AC-12** 12V DC Adapter **$8.95**
▶**B-12** Dry Cell Holder and switch for D-612 ..... **$10.95**
▶**BAC-5** Nicad Battery Pack for D-500 & D-510A **$29.95**
▶**BAC-12** Nicad battery Pack for D-612/D-1200 ..... **$34.95**
▶**RF-500X** In-line RF Sampler, 250W max **$39.95**
▶**T-1200** 21" BNC Telescopic Antenna **$8.95**

K-COM Telephone RF Interference Filters

Cure phone RFI in the most irritating cases even when dealing with transmitters with full legal limit power output. Use any number of filters with no adverse effect on telephone performance. Comes fully assembled, with complete installation instructions.

▶**RF-1** For single line equipment including wired and cordless telephones, answering and fax machines, modems, etc.; has standard RJ-11 modular connectors **$16.95**

▶**RF-1/2-line** The correct filter for two-line telephone sets. Standard use or with multi-line electronic key phone systems typically found in businesses **$22.95**

▶**RF-1/coiled** Recommended when RFI enters through the coiled telephone cord **$22.95**

▶**RF-2** Hard-wired, provides a wide range of installation options to add RFI rejection at a variety of physical and electrical locations in the system wiring; inside phone jacks, behind wall mounted telephones, etc **$10.95**

We DEAL in Trade-in's ...

and are always looking for Clean, Late Model SSB & FM Gear.

Look over the Goodies in this Catalog, then use this Handy Coupon to tell us what you've got and we'll rush you our quote ... Pronto!

Looking for good Used Gear? We always have hundreds of items in stock, just CALL and let us know what you need!

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I am interested in the following NEW Equipment:

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I have the following to TRADE: _____

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Name _____ Call _____

Address _____

City/State _____ Zip _____

STARTEK INTERNATIONAL INC.

U.S. MADE FREQUENCY COUNTERS

ACTUAL SIZE

FAST and CONVENIENT, RELIABLE and COMPACT describe the *STARTEK ATH™* series, *Auto Trigger & Hold* Frequency Counters.

USE to find unknown frequencies, locate RF sources, check equipment for operation and frequency calibration. Use with antenna analyzers for antenna tuning, monitor the output frequency of transmitters, signal generators and more.

POCKET SIZE for convenient portable use – internal Ni-Cad batteries and AC charger/adapter are included.

EASY to use – no complicated controls or multi-function switches.

BRIGHT red LED digits for excellent readability and reliability.

BAR GRAPH indicating signal strength, on most models.

PREAMPLIFIER circuits are built into all *ATH™* series counters for maximized – ultra high sensitivity.

5 YEAR all parts and 1 year labor limited factory warranty.

U.S. made and very affordable – prices start under $120.

Call AES®
for Prices & Ordering

For technical questions or model selection, call STARTEK Help Line 305-537-5577

Model 1350
Basic Model, 1-1300 MHZ, Hold Sw (No ATH or Bar Graph) $129. CALL

ACCESSORIES	Call For Prices
#CC-90	Soft Case for All Models
#TA-90	Telescope BNC Antenna
#TA-90-L	Telescope Elbow BNC Antenna
#RD-150	150 MHZ Rubber Duck Antenna
#RD-2750	27 & 50 MHZ Rubber Duck Antenna
#RD-450	450 MHZ Rubber Duck Antenna
#RD-800	Cellular phone band RD Antenna
#P-110	200 MHZ 1X-10X Probe
#LP-22	Low Pass, Audio Probe
#DC-10	Direct, 50 OHM Probe
#DC-5	BNC Cable to Clip Leads
#M-207-IC	Interface Cable MFJ Ant. Analyzers
#APA-9	9VDC Auto Power Adapter

See Price List or Call AES for Pricing

FEATURES	ATH-10 CALL reg $179	ATH-15 CALL reg $235	ATH-30 CALL reg $299	ATH-50 CALL reg $339
FREQUENCY RANGE	1 MHZ - 1200 MHZ	1 MHZ - 1500 MHZ	1 MHZ - 2800 MHZ	5 HZ - 2800 MHZ
AUTO TRIGGER & HOLD	YES	YES	YES	YES
SIGNAL BAR GRAPH	NO	YES	YES	YES
LOW BATTERY IND.	NO	YES	YES	YES
ONE-SHOT & RESET	NO	OPTIONAL	YES	YES
HI-Z LOW RANGE	NO	NO	NO	YES

OPTION #HST-15 is a high accuracy, high stability, time base upgrade that can be ordered with any *ATH* ™ series model (±0.2PPM TCXO) ..... **$125** CALL

BAND PASS FILTERS EXTEND READABILITY DISTANCE. **Call For Price**

#LP-60	DC - 60 MHZ	#BP-150	130 - 500 MHZ
#HP-400	400 - 1500 MHZ	#HP-800	800 - 2000 MHZ

All instruments are true Pocket Size: 4" High x 3.5" Wide x 1" Deep, <14 cubic in. and are shipped with factory installed Ni-Cad batteries and AC charger/adapter.

Antennas and various accessories are optional.

Some Accessories Not Pictured

STARTEK INTERNATIONAL INC.
Ft. Lauderdale, Florida U.S.A.

IN STOCK AT AES® STORES...ORDER TODAY!

A99

10 meter
Base Station Antenna

TWIN RING ADJUST-A-MATCH TUNING

The **A-99** is a half wave over a quarter wave variable mutual inductance tuned antenna for 10–17M.

It's **economical** and **easy to use!** — it features the **Solarcon** Twin Ring "Adjust-A-Match" tuning which makes it possible to tune the input to the antenna and obtain the optimum SWR over a wide range of frequencies. Optional Ground Plane Radial Kit makes it perform even better!

Simple! — raising the rings raises the frequency and lowering the rings lowers the resonant frequency.

A real beauty! — rugged three-piece white fiberglas construction with triple plated brass fittings. It's easy it assemble and install.

A-99 Specifications

Height	17 ft. 8 in.
Sections	3
Bands	10–17 meters
Gain	3 dBi
Power Limit	2000W
Radiation Angle	<20 degrees
Grounding	DC Grounded
Mounting	1-1/2" mast max.
Connector	SO-239
PRICE	**$59.95**
GPK-1 Ground Plane Radial Kit	**$39.95**

SOLARCON ANTENNAS

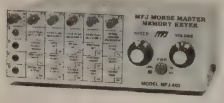
MFJ Keyers, etc

▶MFJ-422C Keyer-Paddle Combination This Keyer unit installs on top of a Bencher Iambic Paddle. If you already own a Bencher paddle, buy just the keyer unit, if not, buy the combo. Speed is 9–50 wpm, it has adjustable weight and tone, dot-dash memories, sidetone. Semi-automatic/tune or automatic modes. Keys grid block, cathode or solid state. Requires a 9V battery or AC adapter. 4⅛" x 2⅜" x 5½"d.

MFJ-422C Combo $124.95 • MFJ-422CX Keyer only $74.95

▶MFJ-407C Deluxe Electronic Keyer Features dot-dash memories, self completing dots and dashes; jam-proof spacing. RF proof, instant start. Single squeeze, or straight key. Front panel controls: speed, weight, tone and volume, ON/OFF, tune, auto/semi-automatic. Selectable A or B-type iambic keying. Built-in speaker, requires 9V battery, or optional MFJ-1312B 110VAC adapter. 7" x 2" x 6"d..... **$64.95**

▶MFJ-401C Econo Electronic Keyer II Similar to MFJ-407C described above, but with external speed and volume controls, internal weight and tune controls. Requires a 9V battery (not included), or AC adapter..... **$49.95**



▶ MFJ-492 Menu Driven Memory Keyer No keypad, and no complex sequences to remember– just follow the menu! You can save and play messages, decrement serial #s, set speed, weight, sidetone, iambic, semi-auto, handkey, message queue, paddle command modes – turn on/off sidetone, transmitter tune, keying output on/off – select iambic A or B, reverse paddle, Morse trainer, and store starting serial number. Commands can also be keyed from the paddle. Holds 192 characters in four soft sectored message memories, and is expandable to over 8K characters in eight memories with lithium battery back-up. Front panel control for speed (5–100 WPM) and volume. Built-in sidetone speaker, direct and grid block keying output. Requires 9V battery or optional 110V AC adapter. 6½" x 2½" x 6¼"..... **$89.95**

▶MFJ-493 Like MFJ-492, but with 32K characters of memory. IBM keyboard input and QSO simulator..... **$129.95**

▶MFJ-490 Memory Keyer/Bencher Combo Nearly all features of the MFJ-492 in a compact configuration that mounts right on the Bencher iambic paddle. 5" x 3" x 5½", 9V DC..... **$149.95**

▶MFJ-490X Memory Keyer/Bencher Combo The MFJ-490 less Paddle and memory expansion kit not available..... **$99.95**

▶MFJ-451 Morse Keyboard A stand-alone CW keyboard with 200 character type-ahead buffer, and two 100 character messages. Requires 12VDC or MFJ-1312B 110VAC adapter ... **$94.95**

▶MFJ-452 Morse Keyboard with 16 character LCD display. Comes with keyboard..... **$119.95**

▶MFJ-557 Deluxe Code Practice Oscillator An oscillator and key mounted on a heavy non-skid base. Speaker, adjustable tone and volume controls, and earphone jack. Uses 9V battery or opt. AC adapter. 8⅛" x 2¼" x 3¾"..... **$24.95**

▶MFJ-564 Deluxe Iambic Paddle, chrome base ◆..... **$49.95**

▶MFJ-411 Pocket-size Morse Code Tutor Take it with you and learn from zero code speed all the way to Extra Class with customized code practice. Features include Random QSO Mode, Word recognition Mode. Requires 9V battery. 3"x1⅛"x5½" .**$74.95**

▶MFJ-432 Voice Keyer Clone your voice! Store phrases like "CQ Contest this is K9KHW..."You're 59"...QTH is Wisconsin, etc. Create and store four of your own messages totaling 20 seconds. Uses 9V battery or 110 VAC with optional MFJ-1312B. 6½"w x 2½"h x 6½"d . **$99.95**

BENCHER

▶Iambic & Single Lever Paddles (left) Highest Quality, offering precise control, reliability and years of trouble-free operation. Wide-range adjustment of tension and contact point spacing. Self adjusting needle bearings, gold-plated solid silver contact points, and polished acrylic paddles. Main frame, contact post, spring posts and bearing ring are all precision machined from solid brass and chrome or gold plated for durability and rich appearance. Heavy steel base with non-skid feet in black texture, chrome or gold finish.

▶BY-1 Black Base **$74.95** **▶BY-2** Chrome Base **$94.95**
▶BY-3 Gold Base **229.95**
▶BY-4 Black base, Gold components **$134.95**

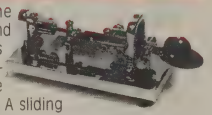
"RJ" Hand Morse Keys (right) A superb and responsive instrument which will bring new pleasure to traditional Morse keying. Features include oil impregnated sintered bearings at pivot points to impart friction-free pivoting and wobble free vertical tracking. Stainless steel locking screw allow individual adjustment for arm height, tension and contact spacing. Black "Navy" style knob with removable skirt gives a solid feel with outstanding tactile feedback, Heavy metal base available in black texture or chrome finish with anti-skid rubber feet

▶RJ-1 Black Base **$74.95** **▶RJ-2** Chrome Base **$84.95**

PALOMAR

▶PK-200 Dual Paddle Key for Iambic Keyers Precision made by Jones of England, imported by Palomar. Smooth, solid iambic action by rotary ball bearings enclosed in a machined brass block on steel base. Adjustable spring tension, paddle height and paddle spacing. Gold-plated contacts, engraved serial #...**$159.95**

VIBROPLEX



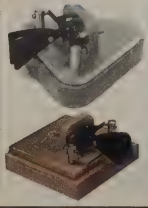
Original "Bug" Press the thumb piece to the right, and the vibrating bar produces one, or a string of dots – automatically. Dashes are made to the left, manually. A sliding weight adjusts the speed for 20 wpm or less. Silver contacts, non skid feet. **Standard model** has painted base and chrome top parts, **Deluxe model** has polished chrome base and top parts and fine jewel movements for smooth operation.

▶Standard (#110) $139.95 • ▶Deluxe (#105) $174.95
▶GOLD (#090) $289.95

▶Original Presentation The finest quality semi-automatic key available. It offers real jewel movements and widest speed range from less than 20 to 55 wpm, plus bright chrome parts mounted on a 24-caret gold base plate..... **(#100) $249.95**

▶VIBROKEYERS Single lever paddle (left) Initiates the automatic dots and dashes of an electronic keyer. **Dual paddle Iambic** (right) allows automatic dot/dash insertion. **Standard:** gray base/chrome parts. **Deluxe:** chrome base/top parts, jeweled movements. **Presentation:** 24k gold plated brass plate on a polished chrome base, chrome parts, jeweled movements.

Single: **▶Standard (#120) $129.95 • ▶Deluxe (#115) $169.95**
▶GOLD (#113) $129.95
Iambic: **▶ Standard (#135) $269.95 • ▶ Deluxe (#130) $169.95**
▶Gold (#123) $269.95 • ▶Presentation (#125) $239.95

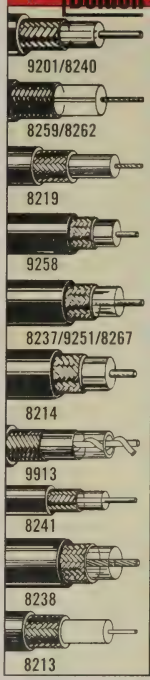


▶Brass Racer Iambic A solid brass iambic paddle mounted on a polished hardwood base.....**(#145) $89.95**

▶EK-1 Solid brass iambic paddle with an 8044 electronic keyer built into the hardwood base. Iambic, dot/dash insertion, adjustable speed ... **(#140) $144.95**

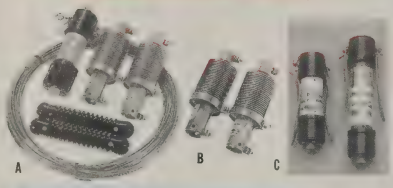
▶ Square Brass Racer Solid lacquered brass iambic paddle mounted on a polished hardwood base. Magnetic action, no springs!.....**(#150) $129.95**

Belden Coaxial Cable — See Price List under Belden



Belden number	RG-type	Dia. (in.)	Center conductor	Insulation type	Shield coverage	Jacket type	Imp. (Ω)	Vel. factor	Loss/100' 100 MHz
9201	58/U	.193	#20 solid copper	Solid polyethylene	78% bare copper	PVC	53	66%	4.5 dB
8240	58/U	.193	#20 solid tinned cop.	Solid polyethylene	95% tinned copper	PVC	53.5	66%	4.5 dB
8259	58A/U	.193	#20 stranded tinned cop.	Solid polyethylene	96% tinned copper	PVC	50	66%	4.9 dB
8219	58C/U	.193	#20 stranded tinned cop.	Cellular polyethylene	96% tinned copper	PVC	50	78%	4.5 dB
8262	58/CU	.193	#20 stranded tinned cop.	Solid polyethylene	95% tinned copper	Non-contam. PVC	50	66%	4.9 dB
9258	8/X	.242	#16 stranded copper	Cellular polyethylene	95% bare copper	PVC	50	78%	3.7 dB
8237	8/U	.405	#13 stranded copper	Solid polyethylene	97% bare copper	PVC	52	66%	2.2 dB
8214	8/U	.405	#11 stranded copper	Cellular polyethylene	97% bare copper	PVC	50	78%	1.8 dB
9913	8/U	.405	#9½ solid copper	Semi-solid polyethylene	100% foil + 88% braid	PVC	50	84%	1.4 dB
9251	8A/U	.405	#13 stranded copper	Solid polyethylene	97% bare copper	Non-contam. PVC	52	66%	2.2 dB
8267	213/U	.405	#13 stranded copper	Solid polyethylene	97% bare copper	Non-contam. PVC	50	66%	2.2 dB
8241	59/U	.240	#22 solid copper	Solid polyethylene	95% bare copper	PVC	73	66%	3.4 dB
8238	11/U	.405	#18 stranded tinned cop.	Solid polyethylene	97% bare copper	PVC	75	66%	2.0 dB
8213	11/U	.405	#14 solid copper	Cellular polyethylene	95% bare copper	PVC	75	78%	1.5 dB

UNADILLA (W2AU)



▶W2AU/W2VS 5-Band Antenna Kit (A)
Low SWR on 80 and 40 meters, resonant on 10, 15 and 20 meters. Includes 40 meter traps, W2AU 1:1 balun, end insulators, 120 ft. of #14 stranded copper wire, and assembly instructions. Approximately 110 ft. long, rated 2KW PEP **$85.00**

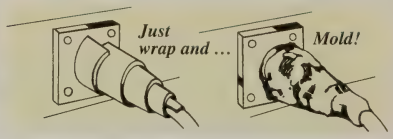
▶REYCO W2VS Antenna Traps (B)
Add these traps to your dipole for multiband operation on two to six bands. *For example:* add the 40 meter pair (KW-40) and get 40 and 80 meter operation. For 10, 15, 20 ,40, 80 and 160 meters, add all five pairs – 33 combinations!

Selecting Traps:
List the bands you want to cover, listing the highest frequency band first. You will need a pair of traps for each band except the one with the lowest frequency.. **See Price List**

▶W2AU Ferrite Baluns (C)
Provides a smooth transition from unbalanced coaxial transmission line to balanced antennas – dipoles, quads, yagis. Produces proper current distribution resulting in reduced feedline radiation for maximum power transfer, gain and reduced possibility of TVI and BCI. Replaces center insulator, DC grounded for lighting protection, has convenient center eye hook for support. Usable from 1.8 to 40MHz and rated at 2KW PEP. Available in **1:1** or **4:1** ratios, or beam balun .... ea. **$24.00**

▶W2DU Non-Transformer Choke Baluns
High efficiency, 1:1 ratio. The HF model is the only one available that works on 160 meters! Handles VSWR up to 5:1 at legal limit, allowing use with antenna tuners. The VHF model eliminates the usual rod and tube hardware balun assembly normally used at those frequencies. Models: **HF** (1.8-30MHz), **VHF** (30-250MHz), **Beam** Balun (40–10 meters)..... ea. **$26.00**

Coax Seal™ Hand-Moldable Plastic for Antenna Component Protection



Coax Seal quickly and effectively seals all types of coaxial fittings; baluns; antenna parts and connectors of all shapes – adheres tightly to vinyl and poly vinyl coax outer jackets. Simply wrap it on like you would regular tape, then mold it to any shape. It stays flexible and sealed at any temperature for years to resist moisture penetration and deterioration. Its permanent flexibility makes it possible to remove and re-install fittings, then re-seal by simply re-forming the same material. Non-toxic, non-contaminating • Roll, 1/2" wide x 60" **UNV 104**.....**$2.49**

STUF Dielectric Waterproofing Filler for Coaxial Connectors

Waterproofs from the inside out!

CRS STUF
$4.50
per tube

- High purity macroscopic foam, dielectrically simulates the coaxial cable core.
- No insertion loss.
- Contains no silicones, etc. to harm cable material
- Just fill connector and tighten. Filler hydraulically channels into all connector voids and ports where moisture can infiltrate, and seals.
- Non-harding, easy removal.
- Quick and easy!.
- About 4.5¢ per connection.

▶PENETROX A A special anti-seizing compound for all bare aluminum to aluminum and aluminum to copper connections, and also as a thread lubricant. Apply to mating pieces of antenna components, tubing, etc. before assembly to provide a non-corrosive, low resistance, airtight seal. Makes disassembly of tubing, bolts at later date a breeze • 4 oz tube **PENETROX A** **$7.95**

PolyPhaser CORPORATION — Lightning Protection

Hams!...
AES® is your Exclusive Source!

PolyPhaser's Impulse Suppressors feature a hermetically sealed voltage sensitive gas tube. Additional components and unique design provide NO DC CONTINUITY to assure that surge voltages and currents that form differentially on the coax are prevented from being shared by your valuable equipment.

BROADBAND COAXIAL PROTECTORS

• Multi-strike capability with low strike throughput energy • Aluminum enclosure.
• VSWR: ≤1.1 over its frequency range

FLANGE MOUNT (left)

▶IS-50UX-C0 Frequency Range: 1.5MHz to 400MHz. Maximum Power: HF 2kW, VHF 375W, UHF 125W **$52.95**

▶IS-50UX-C1 Frequency Range: 50MHz to 700MHz. Maximum Power: VHF 375W, UHF 125W..... **$52.95**

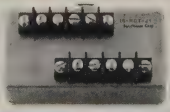
▶IS-50NX-C2 Range: 125MHz to 1000MHz. Max.Power: VHF 375W, UHF (low) 125W, 800MHz -1 GHz 50W. Type N **$52.95**

BULKHEAD MOUNT (right)

▶IS-B50LU-C0 Frequency Range: 1.5MHz to 400MHz. Maximum Power: HF 2kW, VHF 375W, UHF 125W **$59.95**

▶IS-B50LU-C1 Frequency Range: 50MHz to 700MHz. Maximum Power: VHF 375W, UHF 125W **$59.95**

▶IS-B50LN-C2 Range: 125MHz - 1000MHz. Max. Power: VHF 375W, UHF (low) 125W, 800MHz-1 GHz 50W. Type N..... **$59.95**



ROTOR CONTROL PROTECTOR

▶IS-RCT (left) Provides protection for rotor controllers, motors, control box and other nearby equipment. EMP rated–faster than other gas tubes with lower turn-on voltage. Water tight enclosure with mounting stud. 7½"h x 3¾"w x 2½"d **$46.95**

IN-LINE PHONE LINE PROTECTOR (right)

▶IS-SPTL Multi-stage protection, with large bandwidth and fast response time, EMP rated. For telephone trunk lines - handles standard ring voltages to 105Vrms. Handles surges up to 36 or 40kA without damaging let through voltages. Shielded metal enclosure. 1¾"h x 4½"w x 3¾"d **$57.95**

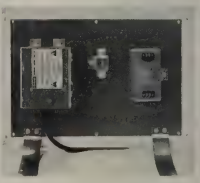
POWER LINE EXTENSION PROTECTOR

In-line, multi-stage EMP rated protectors provide multi-strike power line protection, filtering and proper grounding when equipment use requires an extension cord. Two outlets, master on/off switch, circuit breaker for added protection. All aluminum grounded enclosure, 4¾ "wide. 120V AC.

▶IS-PLDO-120-15A with 15' cord, 120VAC @ 15A **$143.95**

▶IS-PLDO-120-20A with 6' cord, 120V AC @ 20A **$179.95**

COPPER GROUNDING PANEL



▶CU-SPGP A .062" thick copper plate mounted on a painted 1/2" plywood backing. Used to mount and ground protectors and to establish a single point location for grounding equipment racks and chassis. comes with concrete anchors, mounting screws, 10 ft. of 1½" copper grounding strap, 2 brass sandwich plates and joint compound. 18"w x 12"h, 16" center mount. ...**$54.95**

LOW INDUCTANCE COPPER INTERCONNECT STRAP

Copper strap has an advantage over wire when used for a ground path because it has lower inductance and cannot be fused open by lightning. For example: 1½" strap has a lower inductance than #2.0 stranded wire. It's easy to cut, solder, etc. Usable above or in-ground applications, #6 AWG thickness (0.159"). Available in 1½, 3 and 6 inch widths and 25, 50, 75 or 100 ft. rolls ..... **See Polyphaser in the Price List**

B & W Antennas & Accessories

Multi-Band Antennas

▶**AT-110 5-Band Trap Dipole** Covers 80–10M, coax feed, 110 ft. long, rated 2 KW PEP. Low VSWR on 80 and 40M; somewhat higher on 10 15 and 20M – typically 2:1 to 3:1. Wire length adjustments for tuning. Assembled..... **$84.95**

▶**AT-55 4-Band Trap Dipole** Covers 40–10M, 52Ω coax feed, 55 ft. long, rated at 500W PEP. Assembled..... **$74.95**

▶**AC 3.5-30 Broadband Folded Dipole** Covers 3.5–30MHz continuous with VSWR less than 2:1. 52Ω coax feed, 90 ft long, rated 2KW PEP. Install as a horizontal flattop, inverted-V, or sloper for DX. Assembled and tuned..... **$179.95**

▶**BWD 1.8-30** Same as AC 3.5-30, but covers 1.8-30MHz continuous. Rated at 2KW PEP, 90 ft. long..... **$179.95**

▶**AC 1.8-30 Continuous Coverage End-fed "V"** Covers 1.8–30 MHz with VSWR less than 2:1, rated 2KW PEP. Requires 80 ft. of horizontal space, or when limited, can be shorted further with only a slight loss of efficiency **$179.95**

Antennas for Limited Space

▶**AS-160 160/80/40/20 meter Dipole or V** 137 feet. long, half-the-length of a full-sized 160 meter dipole, yet provides excellent performance. It also gives excellent full-size performance on 80, 40 and 20 meters. Three sets of traps isolate a 1/2-wave on each band. For best match and bandwidth,. an antenna tuner is recommended for 160M operation with "no-tune-up" transceivers. Rated at 500W PEP **$139.95**

▶**AS-80 80/40/20 meter Dipole or Inverted V** Similar to the AS-160 above, except only two sets of traps. Where space is at a premium, this antenna can provide excellent coverage of 80 meters with a shortened overall length of only 78 ft. Low SWR on all three bands. Rated at 500 watts PEP **$109.95**

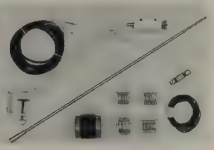
▶**AS-40 40/20/25/10 meter Dipole or Inverted V** Two sets of traps, rated at 500W PEP. Overall length is 40 ft..... **$139.95**

▶**AS-20 20/15/10 meter Dipole or Inverted V** Two sets of traps rated at 500W PEP. Overall length is 23 ft..... **$99.95**

B&W Antennas for Very Limited Space

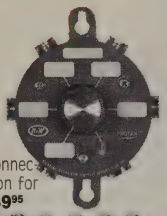
▶**AXS-160 160/30 meter Dipole or Inverted V** One set of traps, rated at 500W PEP. Overall length is 96 ft..... **$99.95**

▶**AXS-80 80/40/15 meter Dipole or Inverted V** Two sets of traps, rated at 500W PEP. Overall length is 72 ft..... **$99.95**



▶**AP-10 Portable antenna** Only 57" fully extended. Convenient for limited space–apartments, travel, etc. Simply change coils for 2, 6, 10, 15, 18, 20, 30, or 40M. Handles 300W PEP. Mounting bracket, all coils, 10 ft. of coax & counterpoise wire..... **$69.95**

B&W Coaxial Switches

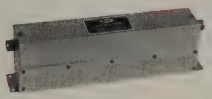


- **52/75Ω coax • 2000W SSB**
- **Negligible insertion loss • VSWR less than 1.2:1 up to 150 MHz • Low crosstalk, -45 dB between adjacent outlets and -60dB between alternate outlets at 30 MHz**

▶**CSR-5G** 5-position, side SO-239 connectors, wall mount. Grounding position for lignting protection **$49.95**

▶**CS-6G** 6-position, locates on operating desk or mounts to wall. SO-239 connectors, grounding for protection **$49.95**

B&W Low Pass Filter



▶**FL-10/1500** Eliminates TVI due to 1.5-30 MHz transmitter harmonics. 52Ω, 1000W rating. Sharp cutoff, high attenuation of undesired harmonics with less than 0.3 db insertion loss..... **$50.00**

New from...

TIMEWAVE TECHNOLOGY INC.

AUTOMATIC ANTENNA TUNER for 160-10 meters

Rated for 150 watts, works with any transceiver. Features memory, fast seek time, two antenna connectors with built-in antenna switch for wire antenna and coax. Indicators for SWR/Power. Heavy extruded aluminum case matches the Timewave DSP-59+ and DSP-599ZX Digital Signal processing units (p.40), runs on 12V DC..... **$349.95**

Van Gorden Engineering

▶ **Hi-Q Balun**

- **1:1** or **4:1** impedance ratio: For matching 52Ω unbalanced coaxial cable to 52Ω balanced antennas.
- For dipoles, yagis, inverted vees and doublets.
- Covers 3 to 40MHz, full legal power
- Replaces center insulator
- Reduces feedline radiation for more power into antenna, and less TVI and BCI problems.
- Built-in DC ground reduces noise and protects against lightning.
- Weatherproof. SO-239 connector and center support eye hook..... **$14.95**

▶ **Hi-Q Antenna Center Insulator**

- Insulator only, no internal balun
- Replaces egg-type center insulator
- Small, rugged, lightweight, weatherproof. SO-239 connector, center supporting eye hook. **$6.95**

▶ **Antenna End** insulators..... each **$3.95**

▶ **Dog Bone** Antenna insulator ..... each **55¢**

Dipole Antennas Complete with Hi-Q 1:1 balun, #14 stranded copper antenna wire, ceramic insulators, and 100 ft. of nylon rope. Rated for full egal power. May be used in an inverted V configuration.

▶**D-80** for 80/75m, 130 ft. ▶**D-15** for 15m, 22 ft long
▶**D-40** for 40/15m, 66 ft long ▶**D-10** for 10m, 16 ft long
▶**D-20** for 20m, 33 ft. long **See Price List**

Shortened Dipoles Construction is the same and includes appropriate traps as pictured above. **See Price List**

▶**SD-80** for 75/80m, 90 ft. long **SD-40** for 40m, 45 ft. long

All-Bander Dipole Antenna Covers 160-10M with the use of an antenna tuner with balanced output. Full 135 ft. long (or less installed as an inverted V or sloper). Trim to fit small lots. Assembled with #14 gauge copper wire, center and end insulators and 100 ft. of 450Ω balanced line. 2KW PEP **$29.95**

▶**SHORTY All-Bander** As above, but with loading coils to shorten the physical length to 70 ft. overall..... **$44.95**

G5RV Multiband Antenna Covers 3.5–30MHz, and 1.8 MHz as a Marconi-type antenna with a tuner and good ground. Consists of a 102 ft. flat top with a 31 ft. section of 300Ω KW twinlead, a transformer/coupler and 70 ft. of RG-8X mini-foam coaxial cable and connector. 2KW PEP, assembled **$50.00**

VanGorden Ladder LIne

▶100 ft. roll, 450 Ω insulated ladder line **$12.00**
▶1000 ft roll, 450 Ω insulated ladder line **99.95**

VanGorden Nylon Rope

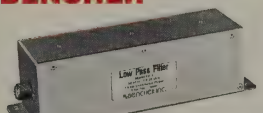
▶**NR-100** 100 ft. roll, antenna guy rope **$4.49**
▶**NR-1000** 1000 ft roll, antenna guy rope..... **39.95**

▶*Special Connector...*
Type-N male connector for Belden 9913 coaxial cable... **$4.95**

VanGorden Ready-Made Coax Assemblies

6 to 100 ft. lengths of quality RG-8X mini-foam or RG-213 coaxial cable with Silver-Plated–Teflon dielectric and PL-259 coaxial connectors installed..... **See Price List**

BENCHER

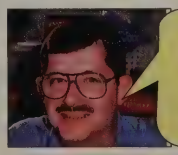


▶**ZA-1A 1:1 HF Balun** For 80–10 meter dipoles, vees, quads and yagis. Transforms 52Ω unbalanced coaxial line to a 52Ω balanced.Reduces feedline radiation, increases efficiency and the possibility of TVI and BCI. Designed without a ferrite core so it can accept a substantial mismatch at full legal power, allowing use of an antenna tuner. DC grounded for lightning protection. **HWK** hardware kit available for mounting to a 2" boom **$37.95**

▶**YA-1 Low Pass Filter** Reduces the possibility of TVI caused by harmonics from 1.8 to 30MHz transmitters. Rated for 1.5KW or 5KW peak power. Greater than 80dB attenuation at 54MHz. 2½"w x 9⅛"l x 2½"h, 2 lbs..... **$54.95**

SWIECH Communications

▶**COY2M3EL 2 Meter Portable Antenna** Three elements on a 3 ft. boom. 4 times the Effective Radiated Power (ERP) of a dipole or J-Pole. The perfect antenna for amateurs on the go or in limited space applications. Covers the entire two meter band, 144-148 MHz. Assembles in less than one-minute. Great for mountain-topping, camping, transmitter hunts, public service events and emergencies. Rated for 75W. Lightweight and black anodized, 2 lbs **$64.95**



John, AB9G sez...
"Don't forget to include Lightning Protection in your Antenna System!"
Check ALPHA DELTA & POLYPHASER

ADI Your new *affordable* Choice!

AT-200 VHF & AT-400 UHF Handheld Tranceivers

AT - 200/AT - 200 HP :

- 0.35/2.5W/5W with 7.2/12.0 V Battery
- Tx: 144 -148 MHz
- Rx: Expands 130 - 179 MHz by keypad control
- 20 Non-Volatile Memories
- 16 Digit DTMF Tone Pad With Monitor
- CTCSS Encode/Decode Included
- Programmable Non-standard Shifts
- Keypad Lock
- Automatic Power Off; Battery Save
- Coded Squelch Control
- Pause, Busy, Memory Scan, VFO Scan
- 6 Channel Steps
- Dual Frequency Watch
- Backlit LCD Display and DTMF Pad
- Small size: Only 2 inches at Hand Hold
- One Touch Open Squelch
- Call Frequency Button
- Individual & Group Paging
- Mars/Cap Capable

AT - 400/AT - 400HP :

- Tx/Rx430 - 450 mHz
- Rx expands to 400 - 480 MHz

AR-146 & AR-446 Mobile Tranceivers

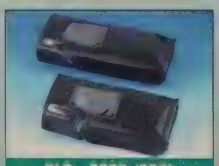
AR - 146 : 144 - 148 MHz

- RX 130 - 180 MHz
- Power: VHF: 50/10/5W
- 40 Memory Channels/Call Channel/Channel Number Display
- Multi Function DTMF Microphone
- CTCSS Encode/Decode (included)
- Memory/Band Scan
- Carrier or Timer Scan Stop
- Auto Power Off
- Dual Frequency Watch
- 4 Step Display Dimmer
- Frequency Lock
- 16 Digit DTMF Decode and Display
- Dual Tone Squelch System Paging
- Time Out Timer
- Selectable Frequency Steps
- Mars/Cap Capable

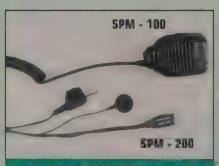
AR - 446 : 430 - 450 MHz

- RX expands 425 - 475 MHz
- Power Output: 35/10/5W

ADC - 12
SMART CHARGER



SLC - 200S /200L
LEATHER CASE



SPM - 100 SPEAKER MICROPHONE
SPM - 200 TINY LAPEL MIC W/EARPHONE

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BATTERIES PACKS

PCA - 145
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- 360° revolving clip, durable and rugged extension cord
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- With earphone jack, for noisy conditions

SPM - 200 / 201
- Tiny (1" x 1/2" x 1/4") electret lapel microphone with PTT
- Light weight earphone without headband
- Excellent receive and transmit audio

SPM - 300 / 301
- With all the excellent features of SPM-100 & more!
- Convenient thumb controlled volume switch right on the speaker microphone
- Simple one finger flip for PTT lock & unlock

SPM- 400 / 401
- With all the excellent features of SPM-200 & more!
- Lightweight integral microphone and earpiece. Does not require headband!
- Convenient PTT clip for lapel or belt
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Throat Mics

SPM - 500 / 501
- Throat microphone for highest background noise isolation
- Microphone, uses "direct vibration sensor" technique t transmit
- The microphone surface is a drum like device receiving vibration from neck area while talking
- Two separate PTT switch lacations for easy access. 1)Clip on for lapel or belt. 2)Tiny PTT with velcro fastener for finger tip use

Power Station

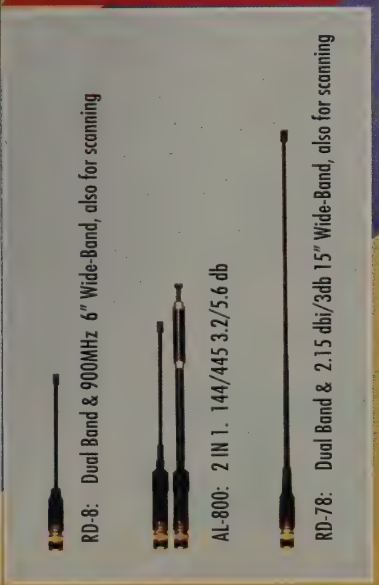
3,6,9,12V DC / Power Supply + Battery

SB - 752

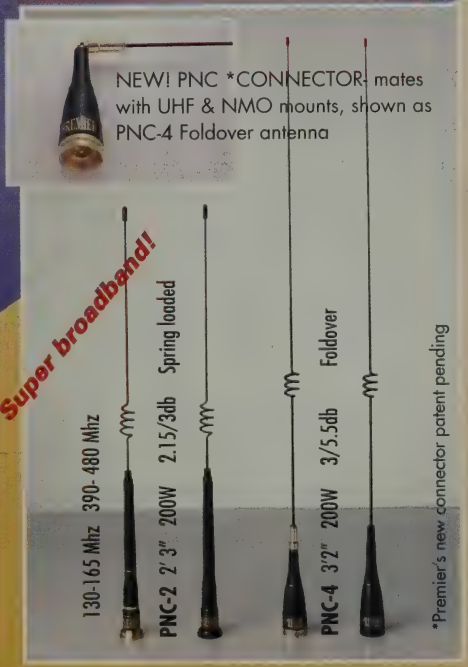
1. LED Charging Indicator
2. DC 3-6-9v Selector Switch
3. Charge Input Cigarette Socket
4. DC 3-6-9v Output Connector
5. Voltmeter
6. LED Power "On" Indicator
7. Main Power On/Off Switch
8. DC 12v Output Cigarette Socket
9. Output (+ -) Terminal-15A

7 lb. H8" W7" X 4.5"
Quick charging AC adapter & car cable included.

HT Antennas



Mobile Antennas



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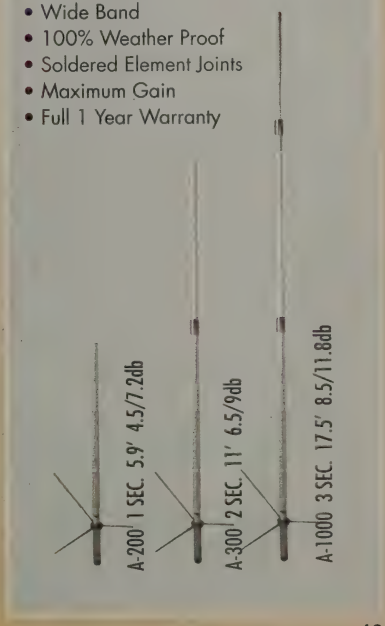
- Maximum Gain
- Full 1 Year Warranty



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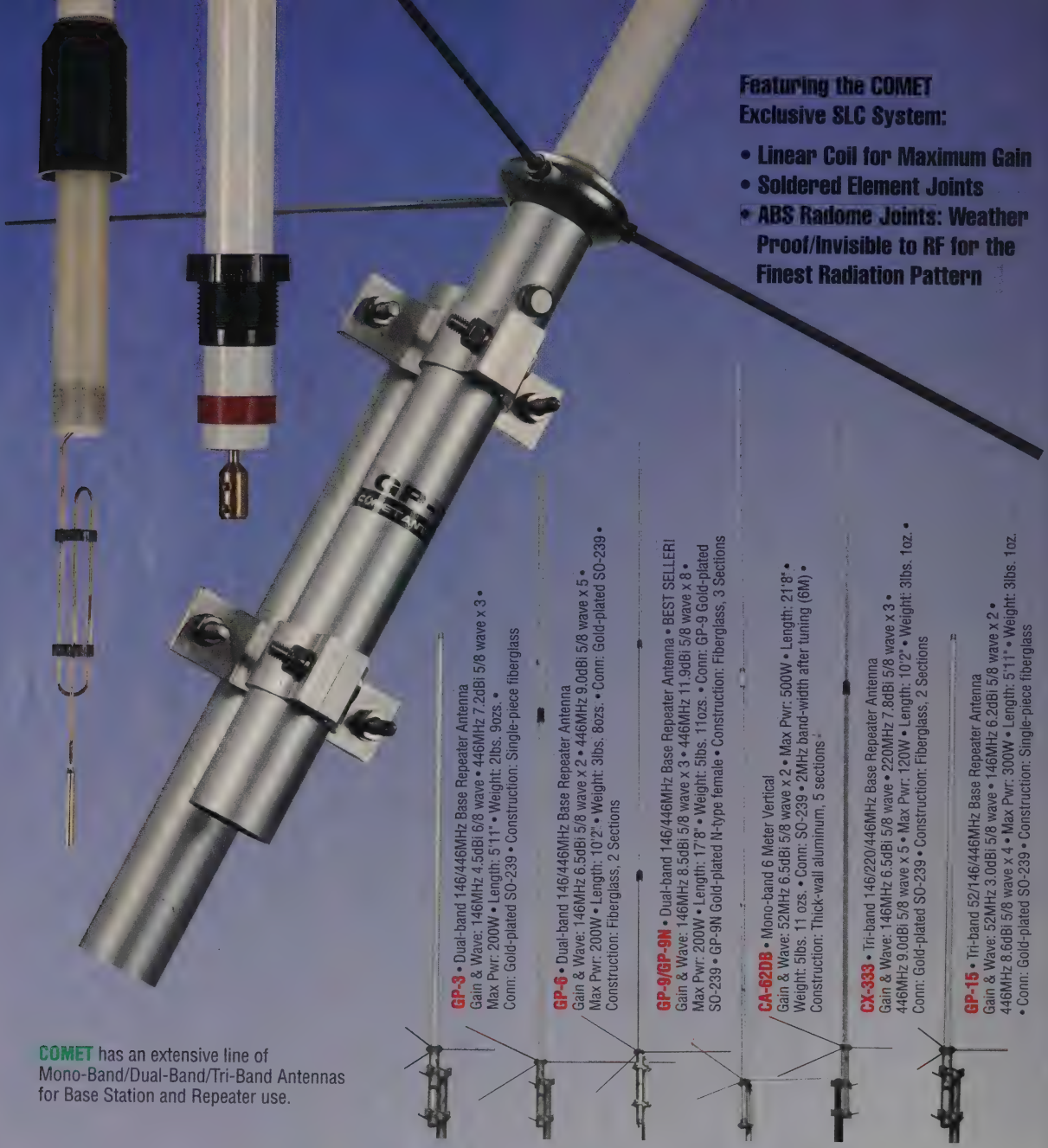

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- **Linear Coil for Maximum Gain**
- **Soldered Element Joints**
- **ABS Radome Joints: Weather Proof/Invisible to RF for the Finest Radiation Pattern**

COMET has an extensive line of Mono-Band/Dual-Band/Tri-Band Antennas for Base Station and Repeater use.

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HT Antenna
Gain: 0dBi
Length: 1.75"
Conn: BNC

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- **High-Quality Craftsmanship**
- **Unique Fold-Over Feature**

NEW Z750 • Dual-band 146/446MHz w/fold-over • Includes COMET exclusive theft-resistant lock!
Gain & Wave: 146MHz 2.15dBi 1/2 wave • 446MHz 5.5dBi 5/8 wave x 2 • Length: 39" • Conn: Gold-plated PL-259 • Max Pwr: 200W

NEW Z780 • Dual-band 146/446MHz w/fold-over • Includes COMET exclusive theft-resistant lock!
146MHz 6/8 wave 4.5dBi • 446MHz 5/8 wave x 3 7.2dBi • Length: 62" • Conn: Gold-plated PL-259 • Max Pwr: 150W

NEW SBB-15 • Tri-band 52/146/446MHz w/fold-over **NEW BLACK COLOR**
Gain & Wave: 52MHz 0dBi 1/4 wave • 146MHz 4.5 dBi 6/8 wave • 446MHz 7.2dBi 5/8 wave x 3 • Length: 58" • Conn: PL-259 • Max Pwr: 120W

NEW SBB-7/SBB-7NMO • Dual-band 146/446MHz w/fold-over **NEW BLACK COLOR**
Gain & Wave: 146MHz 4.5dBi 6/8 wave • 446MHz 7.2dBi 5/8 wave x 3 • Length: 58" • Conn: SBB-7 PL-259/SBB-7NMO NMO • Max Pwr: 70W

NEW SBB-5/SBB-5NMO • Dual-band 146/446MHz w/fold-over **NEW BLACK COLOR**
Gain & Wave: 146MHz 2.5dBi1/2 wave • 446MHz 5.5dBi 5/8 wave x 3 • Length: 39" • Conn: SBB-5 PL-259/SBB-5NMO NMO • Max Pwr: 120W

CX-224/CX-224NMO • Tri-band 146/220/446MHz w/fold-over
Gain & Wave: 146MHz 2.15dBi 1/2 wave • 220MHz 3.5dBi 5/8 wave • 446MHz 6.0dBi 5/8 wave x 2 • Length: 36" • Conn: CX-224 PL-259, CX-224NMO NMO • Max Pwr: 100W

B-20/B-20NMO • Dual-band 146/446MHz w/fold-over
Gain & Wave: 146MHz 2.15dBi 1/2 wave • 446MHz 5.0dBi 5/8 wave x 2 • Length: 30" • Conn: B-20 PL-259/B-20NMO NMO • Max Pwr: 50W

SH-55 • Super Flexible 146/446MHz HT Antenna
Gain: 146MHz 1.5dBi • 446MHz 3.2dBi • Length: 15.5" • Conn: BNC • Max Pwr: 10W

B-10/B-10NMO • Dual-band 146/446MHz cellular look-a-like • Gain & Wave: 146MHz 0dBi 1/4 wave • 446MHz 2.15dBi 1/2 wave • Length: 12" • Conn: B-10 PL-259/B-10NMO NMO • Max Pwr: 50W

COMET Specializes in a wide assortment of Mobile Mounting Systems that require NO HOLES. A variety of trunk lid, hatchback, rain gutter, roof rack and window mounts are available along with low loss coax cable assemblies, for the ultimate mobile station!

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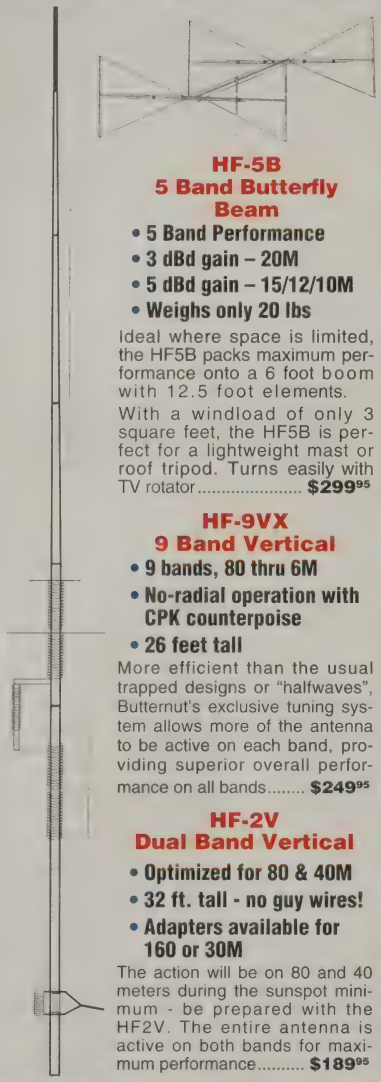
BUTTERNUT

Makers of the famous High Performance Butternut Verticals and the HF5B "Butterfly" Compact Beam.



HF-5B 5 Band Butterfly Beam

- **5 Band Performance**
- **3 dBd gain – 20M**
- **5 dBd gain – 15/12/10M**
- **Weighs only 20 lbs**

Ideal where space is limited, the HF5B packs maximum performance onto a 6 foot boom with 12.5 foot elements.

With a windload of only 3 square feet, the HF5B is perfect for a lightweight mast or roof tripod. Turns easily with TV rotator..... **$299.95**

HF-9VX 9 Band Vertical

- **9 bands, 80 thru 6M**
- **No-radial operation with CPK counterpoise**
- **26 feet tall**

More efficient than the usual trapped designs or "halfwaves", Butternut's exclusive tuning system allows more of the antenna to be active on each band, providing superior overall performance on all bands..... **$249.95**

HF-2V Dual Band Vertical

- **Optimized for 80 & 40M**
- **32 ft. tall - no guy wires!**
- **Adapters available for 160 or 30M**

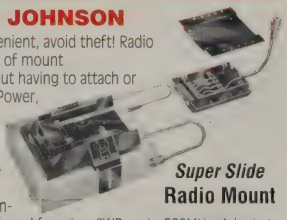
The action will be on 80 and 40 meters during the sunspot minimum - be prepared with the HF2V. The entire antenna is active on both bands for maximum performance..... **$189.95**

AMERITRON Remote Coaxial Switches

RCS-4 Convenient selection of up to 4 different HF antennas while using just one coaxial feed line, and no additional control cable. The weatherproof switch box locates out on the tower, mast or other remote location. The control box locates at your operating position, switches antennas with a control voltage routed directly through the coaxial cable. Rated for 1.8–30MHz at the legal power limit..... **$129.95**

RCS-8V Independently or simultaneously select up to 5 different antennas using just one coaxial feedline and a single 8-wire control cable. Internal wiring allows user to ground or float unused terminals as required. Rated to handle 5KW below 30MHz, and 1KW up to 150MHz..... **$139.95**

GAMBER JOHNSON



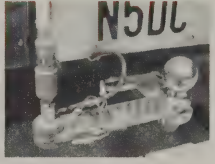
SS-100 Convenient, avoid theft! Radio slides in and out of mount instantly – without having to attach or remove cables. Power, Ground, Antenna, and Speaker leads connect and disconnect automatically. RF components are designed for a low SWR up to 500MHz. Adapts to most radios; bracket adjusts to case and can be conveniently attached above or below the radio unit..... **$59.95**

Super Slide **Radio Mount**

SS-101 Extra base for multiple vehicle use..... **$36.58**

DC SALES

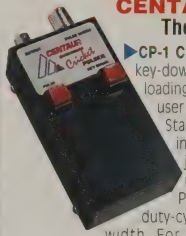
"Tenna Hitch"



Consists of a heat treated, high strength aluminum bracket with an insulated 3/8" x 24 thread antenna mounting stud. Installs under the ball of a Class-I or Class II trailer hitch and attach the coaxial cable. Rugged!–handles the largest mobile antennas, and does not interfere with trailer towing capability. No holes to drill, all hardware supplied..... **$32.95**

CENTAUR Electronics

The *"Cricket"* Pulser



CP-1 Cricket Pulser No more tuning key-down, creating damaging heat and loading down the power supply!. This user controlled, Variable duty cycle Station Tuning Instrument plugs into the station's exciter CW key jack. Proceed to tune-up in the usual manner, but press the PULSE button and adjust the duty-cycle control for a desired pulse width. For best results a peak-reading wattmeter and a 10% pulse width setting is recommended. Powered by a 9V battery. 4¼"l x 2¼"w x 1⅞"d..... **$67.00**

OAK BAY Technologies

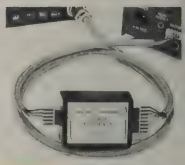
Accessories

LP-11P Commercial Grade Low Pass Filter Installs in transmission line between transmitter and power amplifier or tuner. Eliminates TVI by filtering out transmitter generated harmonics that could fall within TV bands. Eleven pole Chebishev filter design covers 1.8 thru 30MHz with less than 5dB insertion loss, an upper cutoff frequency of 41MHz and 80dB of ultimate attenuation. Rated at1 KW RF..... **$69.95**

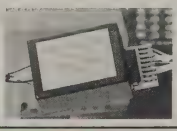
LP-50 Low Pass Filter for 1.8 thru 54MHz..... **$69.95**

AM-101B Rubber Duck Window Mount Improve handheld performance when operating mobile by getting the RF out of the car. Great for emergencies, rental cars, etc. The custom stainless steel bracket slips on the top edge of car window, and the rubber duck antenna from your HT attaches to the BNC mount on the outside. Comes with 6 ft. of RG-174U coax with BNC connector. 15W, dual/twin band compatible..... **$24.95**

PS-101 High Current 12V Power Strip Make just one connection to your power source (battery, power supply, etc.) and distribute power to multiple devices. Provides 5 outputs with 2 fused at 20 Amps and 3 at 30 Amps. Rugged screw and clamp connections. Rated for 50 Amps total current. Comes with 5 ft. of #8 gauge hook-up wire, terminal lugs and fuses..... **$79.95**



CA-232U Uni-Cable™ Interface A universal Packet TNC cable that provides interfacing between popular TNCs and all popular VHF/HF transceivers. No soldering required, easily programmed by user to mate with 8-pin microphone. connectors..... **$34.95**



CA-232HH Uni-Cable™ Interface Provides an easy connection of popular TNCs to popular handhelds that use 2.5mm and 3.5mm microphone and earphone jacks. No soldering is required..... **$34.95**

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• State-of-the Art • 0.5 – 50MHz performance with advanced toroidal transformer • 3kW SSB rated • Extended performance in hostile environments • Stainless steel hardware • Heavy-duty body materials • Military grade internal components • 3" dia.x 7"

B11W10–50 for 1:1 Dipole..... **$49.95**

B11Y10–50 for 1:1 YAGI..... **$49.95**

B41Y10-50 for 4:1 YAGI..... **$64.95**

B41LW10–50 4:1 Ladder Line to Coax..... **$64.95**

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Introducing the R7000

The all new R7000 is a 10 through 40 meter, no ground radial antenna that is expandable to include the excitement of 80 meters. It includes the best features of its predecessor the R7 plus many more. R7000 means excellent performance, easy installation and use, slim silhouette and high reliability.

R80 Add-On Kit

80 meters can be easily added to the R7000 with the R80 kit. The kit includes a 40 meter trap, tubing, 80 meter loading coil, UV stable 400 lb. test guy rope and three 20 foot counterpoise wires that attach to your guy points. The R80 counterpoise wires were designed with state-of-the-art anti-resonators to ensure top performance on all bands. The R7000 with R80 kit is pictured to the far right.

- **EXPANDABLE TO 80M**
  Transform your R7000 into an R7000+ with R80 kit (trap, tubing, guy & counterpoise wire)
- **RELIABLE**
  New trap design is stable in all conditions
- **EASY INSTALLATION**
  For typical use, tuning is not needed
- **AUTOMATIC BAND CHANGING**
  To any band from 10 through 40m (80m with R80 kit)
- **SLIM SILHOUETTE**
  Gain favor of family and neighbors with the slim, smooth profile of our new trap design

MODEL	R7000	R7000+ (w/R80 kit)
Frequency, meters	10,12,15,17, 20,30,40	10,12,15,17 20,30,40,80
Gain, dBi	3	3
Wavelength each bd	Half-wave	Half-wave
VSWR	1.2:1 typical	1.2:1 typical
2:1 bandwidth, KHz	10m (1700) 12m (100) 15m (450) 17m (100) 20m (250) 30m (100) 40m (150)	10m (1700) 12m (100) 15m (450) 17m (100) 20m (250) 30m (100) 40m (100) 80m (70)
Power Rating, Watts	1500	1500
Radiation angle, deg.	16	16
Horizontal rad, deg	360	360
Height, ft(m)	24 (7.3)	34.5 (10.5)
Mast size range, in (cm)	1-3/4 to 2-1/8 (4.4-5.4)	1-3/4 to 2-1/8 (4.4-5.4)
Wind load, ft^2 (m^2)	2 (0.2)	2.5 (.23) antenna 1.5 (.139) guys
Weight, lb, (kg)	18 (8.2)	24 (10.8)

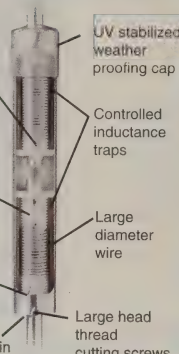
R7000+ (with 80m Kit)

Here's what some of the very first R7000 users have to say.

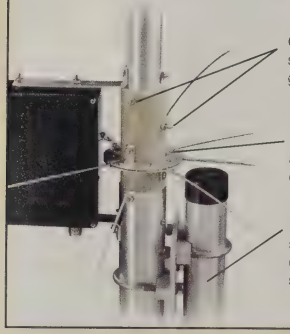
"The antenna is well built. The instructions are very clear with very helpful diagrams . . . Seven bands right out of the box with no tuning is impressive. . . I really like the construction of this antenna, no loose lockwashers to chase around. All stainless steel hardware is top notch. Keep up the good work." WVØH

"The R7000 experienced several hours of 50 mph sustained wind with gusts 70 plus mph. I used the R7000 during this time and noticed no difference in performance . . . I was surprised by being able to easily work western European and western African stations on 17m (from North Dakota)" WBØOAJ

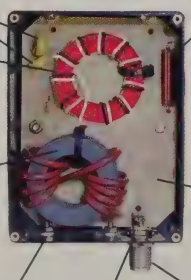
R7000 Trap

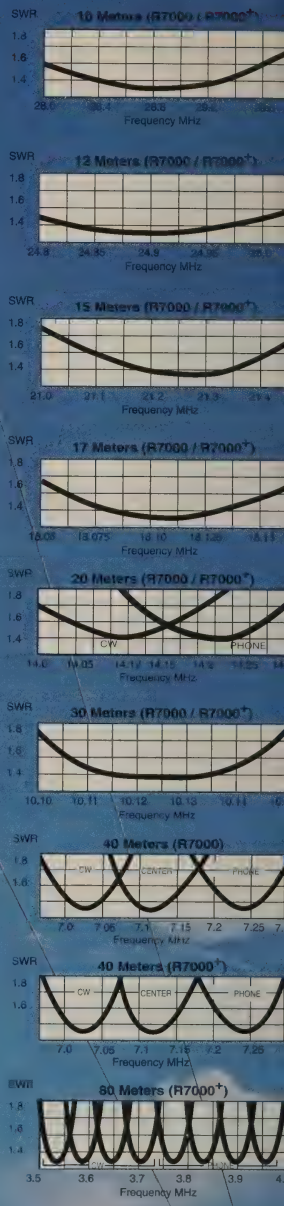


R7000's Rugged Design



R7000 Matcing Network





10, 12, 15, 17, 20, 30, 40, 80 Meters

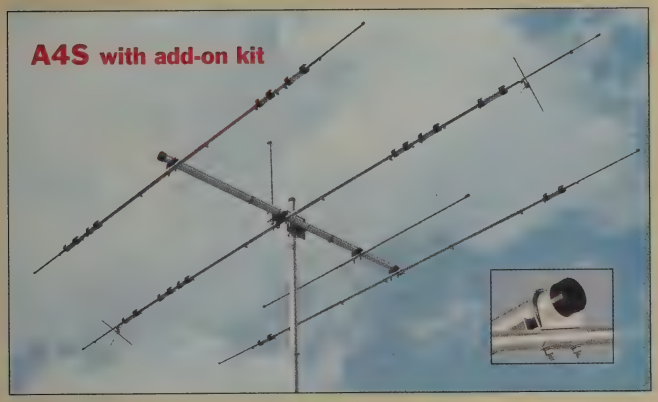
cushcraft CORPORATION

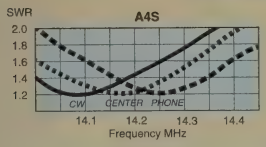
10, 15, 20, 40 Meters

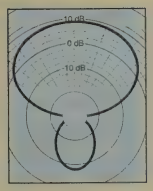
Cushcraft Tribanders Make More DX Fun!

Our three and four element tribanders provide the versatility and performance that you need for reliable communication around the world. And they last! Cushcraft's World Rangers are made with 6063-T832 aluminum tubing, weatherproof traps, and fiberglass insulators to stand up to the weather. Our World Rangers have 50 Ohm twin terminal connectors and need no balun. They are designed with fewer parts for easier assembly, lower weight and less windload. You will spend your time in the shack, not on the tower!

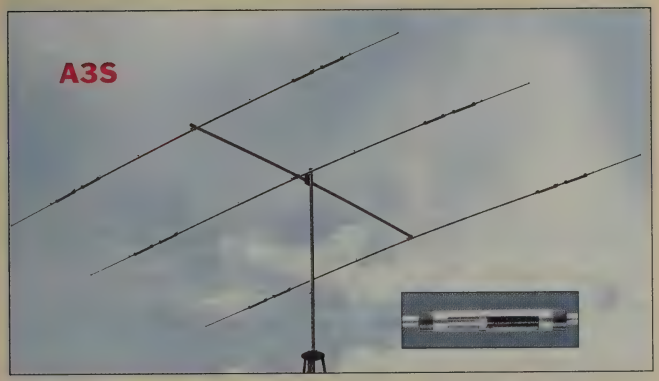
Ham radio is a lot more fun when you have a dependable antenna like our World Ranger. Make your choice from our A4S , A3S and A3WS models. Add a 30 or 40 meter kit to make your antenna even more versatile!

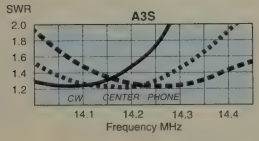


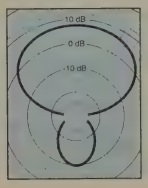




A4S RADIATION PATTERN







A3S RADIATION PATTERN

A4S Four Element Beam

With stainless steel hardware.

The A4S is the true, high performance tribander. Precisely tuned high-power traps, carefully selected element lengths, and proper spacing combine to make the A4S the preferred antenna for your contest work! This is the premium antenna with all the features that you want. High gain, low SWR, and wide bandwidth keep the contacts coming in. All U-bolts, clamps and hardware are stainless steel. The A4S has pinned boom sections and formed aluminum brackets to keep elements straight under all conditions. And our solid construction keeps the A4S on the tower!

A3S Three Element Beam

With stainless steel hardware.

The A3 World Ranger, our top selling tribander, has become the A3S with all stainless steel hardware. It's a real power-house in a small space and lets you work the pile-ups with confidence. All you need is a lightweight tower and rotator to enjoy the benefits of the A3S. It's a proven performer in DX-peditions and contests and handles full power from your linear. Construction features include pinned boom sections, heavy duty element clamps with backing plates plus all stainless steel hardware.

When space is at a premium, but you want the benefits of a full-size tribander, the A3S is right for you!

MODEL	A4S	A3S
Frequency, MHz	28, 21, 14	28, 21, 14
No. Elements	4	3
Forward Gain, dBd	8.9	8
Front to Back Ratio, dB	25	25
SWR 1.2:1 Typical		
2:1 Bandwidth KHz	>500	>500
Power Rating, Watts PEP	2000	2000
3 dB Beam Width, Deg. E Plane	58	60
Boom Length, ft (m)	18 (5.48)	14 (4.27)
Boom Diameter, In (cm)	2 (5.10)	1.5 (3.81
Longest Element, ft (m)	32 (9.75)	27.75 (8.45)
Element Center Dia, in (cm)	1.25 (3.18)	1.25 (3.18)
Turning Radius, ft (m)	18.4 (5.49)	15.5 (4.72)
Mast Size Range, in (cm)	1.25-2.00 (3.18-5.08)	1.25-2 (3.18-5.08)
Wind Load, ft^2 (m^2)	5.50 (0.51)	4.36 (0.47)
Weight, lb (kg)	37 (16.8)	27 (12.9)

30 and 40 Meter Add-On Kits

40 meters will come alive by adding one of these kits to the dipole of your A3S or A4S. The kits include high power traps with heavy wall fiberglass insulator and all hardware. A simple adjustment allows 30 meter operation. For our newest beam, the A3WS, we have a 30 meter add on kit the A103.

A743 7 MHz/10 MHz kit for A3S
A744 7 MHz/10 MHz kit for A4S
A103 10 MHz kit for A3WS

MODEL	A743/A744		A103
BAND	7 MHz (40 m)	10 MHz (30 m)	10 MHz (30 m)
Driven Element with Adapter kit, ft (m)	33.19 min. 35.33 max. (10.12-10.77)	27.12 min. 28.4 max. (8.27-8.66)	32.1 (9.8)
Windloading ft2 (m2)	.58 (.05)	.27 (.03)	.45 (.04)
Bandwidth, KHz	125	150	250
Power Rating, Watts	2000 PEP	2000 PEP	2000 PEP
Side Rejection, dB	20	20	20
Weight, lb (kg)	3.44 (1.56)	2.29 (1.04)	3.25 (1.47)

10 through 20 Meters

cushcraft CORPORATION

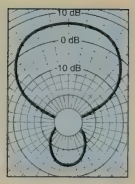
Skylog

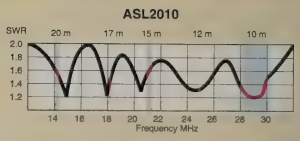
- **Continuous five band coverage from 13.5 to 32 MHz**
- **Constant gain over entire frequency range**
- **6.4 dBd gain, 65 degree beamwidth**
- **High efficiency design, antenna stays cool and VSWR steady**
- **18 foot boom and 19.5 foot turning radius**

This all new log periodic antenna is the most cost effective, high gain, five band antenna solution on the market today. Skylog offers continuous operation from 13.5 to 32 MHz. Antenna gain and beamwidth are constant for uniform coverage from 10 through 20 meters. The ASL2010 is rated for continuous duty at full legal power. Skylog is designed for maximum gain on a manageable 18 foot boom with only 10.1 square feet of wind surface area. All stainless steel hardware and rugged element design are only some of the many features that provide years of superior antenna performance. Skylog ASL2010 is the smart choice for multiband HF operation.

MODEL	A3WS	ASL2010
Frequency, MHz	24, 18	13.5-32
No. Elements	3	8
Forward Gain, dBd	8.0	6.4
Front to Back Ratio, dB	25	15-20
SWR 1.2:1 Typical		
2:1 Bandwidth	300 KHz	18.5 MHz
Power Rating, Watts	2000 PEP	2000
3 dB Beam Width, Deg. E Plane	60	65
Boom Length, ft (m)	14 (4.27)	18 (5.48)
Boom Diameter, In (cm)	1.50 (3.81)	2.0 (5.08)
Longest Element, ft (m)	25.1 (7.66)	38 (11.58)
Element Center Dia, in (cm)	1.25 (3.18)	1.25 (3.18)
Turning Radius, ft (m)	14.4 (4.4)	19.25 (5.86)
Mast Size Range, in	1.25-2	1.5-2
(cm)	(3.18-5.08)	(3.18-5.08)
Wind Load, ft^2 (m^2)	4.1 (.38)	10.1 (.93)
Weight, lb (kg)	22.5 (10.2)	55 (25.5)

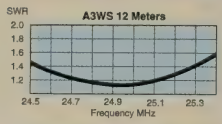
ASL2010

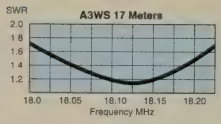




A3WS WARC Bands 3 Element Beam

Enjoy the excitement of our newest HF bands with this all new beam. The A3WS gives full performance on 12 and 17 meters. With the addition of our easy-to-use A103 add on kit, it will also cover 30 meters. A3WS needs only a lightweight tower and rotator or you can mount it above an existing tribander. Construction features include pinned boom sections, heavy duty element clamps with backing plates plus all stainless steel hardware. Take charge of 12, 17 and 30 meters with the new A3WS.





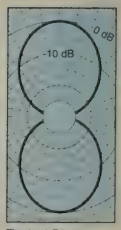
Rotatable Dipoles

Our World Ranger Dipoles give bi-directional patterns and rotatable convenience. You can mount them high and away from the trees for better performance than a wire dipole. These single and multi-band dipoles feature high-performance traps, heavy wall tubing, and rugged hardware for years of enjoyment.

D3W World Ranger Dipole

The perfect answer for the WARC bands. This rotatable dipole is easily mounted on the same mast as your existing tri-bander or other antennas. With a bi-directional pattern it will give you amazing performance on the new bands.

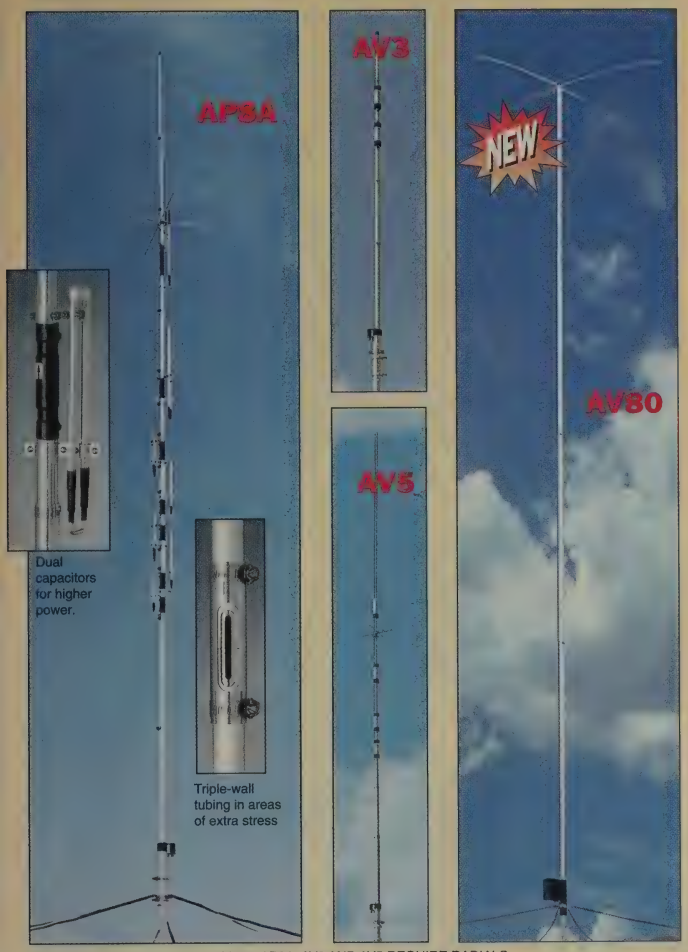
MODEL	D40	D4	D3	D3W
Frequency, MHz	7	28,21,14,7	28,21,14	24,18,10
SWR 1.2:1 Typical				
2:1 Bandwidth, KHz	200	>350 40>125	>500	>200
Power Rating				
Watts PEP	2000	2000	2000	2000
Length ft	42.25	35.8	25.8	34.0
(m)	(12.88)	(10.92)	(7.86)	(10.37)
Mast Size, in(cm)	1.5-2 (3.8-5)	1.5-2 (3.8-5)	1.5-2 (3.8-5)	1.5-2 (3.8-5)
Wind Load, ft2 (m2)	1.3 (.12)	1.3 (.12)	.9 (.08)	.9 (.08)
Weight, lb (kg)	12 (5)	13 (6)	9 (4)	11 (5)



Typical Dipole Radiation Pattern

10 Through 80 Meters

Limited space or budget? Want a low angle of radiation for more DX contacts? Consider using a Quarterwave vertical. These antennas require a good ground system, usually created with radials. The resulting antenna system gives you the most HF bang for the buck. If you want to cover several bands, the AP8A, AV5 or AV3 is the answer. To improve your stations performance on 75/80 meters, use the AV80. With any of these models, excellent DX will be yours within hours.



80 Meter, AP8A, AV3 AND AV5 REQUIRE RADIALS

NEW 80 Meter Vertical

For a special antenna on 75 and 80 meters, consider the NEW Cushcraft AV80. This time tested design features a top loading coil and a four element capacitive top hat. The radiator is 36 feet (10.9 M) long and 2 inches (5 cm) O.D. Its matching network allows immediate QSY'ing from the DX phone band to the DX CW band. Or, it could be set entirely in either the phone band or the CW band. The AV80 will take all the power you want to feed it. The matching network components are overrated to operate up to 1500 Watts. The AV80 is designed to match impedances with up to 5 Ohms of ground loss. It works well with 4 radials elevated 8 to 10 feet (2.4-3 M) off the ground or 16 quarterwave radials if ground mounted. Ground mounting the antenna would require a more extensive radial system. AV80 is an excellent choice for multi-element arrays.

AP8A, Eight Bands In One Tough Antenna

The AP8A is the next generation eight-band quarterwave that has been strengthened with thick wall tubing, up to three layers deep in some sections, and high tensile strength fiberglass. The traps have been beefed up to handle the legal limit and are moisture sealed. You can be up and running on 10 through 80 meters in no time. (The APR-18A Radial Kit will make the job even easier.) The key to the AP8A's eight band coverage is the automatic bandswitching and efficient traps. The traps are parallel LC circuits which allow broadband operation. The AP8A is a very popular antenna with new hams because it's such a great value. Eight bands in one rugged antenna at an affordable price.

APR18A Radial Kit

The Cushcraft APR-18A radial kit is the perfect match for the AP8A, AV3, AV5, or any quarterwave amateur HF vertical where a good low angle signal on the horizon and a low VSWR are important. The kit offers maximum performance on all HF bands and consists of only 9 multiple and single-conductor radials, with a maximum length of only 31 feet. It's great for quick installation at either ground level or rooftop sites.

AV3 Three Band & AV5 Five Band

Our AV3 handles 10, 15, and 20 meters with fine performance and easy assembly. It has the same rugged construction as the AV5. The AV5 works with the popular 10, 15, 20, 40 and 80 meter bands with broad bandwidth and full legal power. For versatility, this is the antenna for you!

MODEL	AP8A	AV80
Frequency, MHz	28, 24, 21, 18, 14, 10, 7, 3.5	3.5
Electrical Wavelength	1/4	1/8 wavelength to top hat
SWR 1.2:1 Typical		
2:1 Bandwidth	Full Band Except 40M>150 KHz & 80 M>80 KHz	With proper ground
Power Rating, Watts PEP	2000	1500
Radiation Angle, degrees	18	18
Horizontal Radiation Pattern, degrees	360	360
Height, ft (m)	26 (7.92)	36 (10.97)
Mast Size Range, in (cm)	1.5-1.75 (3.8-4.4)	1.5-1.75 (3.8-4.4)
Wind Load, ft^2 (m^2)	1.7 (.16)	4.2 (.42)
Weight, lb (kg)	9.5 (4.3)	20 (9.1)
Radials Required	Normally	Normally
Radial Kit Available	Yes, APR18A	APR80A

MODEL	AV3	AV5
Frequency, MHz	28, 21, 14	28, 21, 14, 7, 3.5
Electrical Wavelength	1/4	1/4
SWR 1.2:1 Typical		
2:1 Bandwidth	Full Band	Full Band except 80 M>70 KHz
Power Rating, Watts PEP	2000	2000
Radiation Angle, degrees	18	18
Frequency Selection	Automatic	Automatic
Horizontal Rad. Pattern, deg.	360	360
Height, ft (m)	14 (4.2)	25 (7.4)
Mast Size Range, in (cm)	1.5-1.75 (3.8-4.4)	1.5-1.75 (3.8-4.4)
Wind Load, ft^2 (m^2)	1.02 (.1)	1.89 (.19)
Weight, lb (kg)	5 (2.3)	8 (3.6)
Radials Required	Normally	Normally
Radial Kit Available	Yes, APR18A	Yes, APR18A

10, 15 Meters

10 Meters

The three element model is a great selling antenna! If you have the space, and need the utmost in performance, then try our four element Skywalker. You can't go wrong with these contest winners, especially if you are a Novice new to ten meters!

MODEL	10-4CD	10-3CD
Frequency, MHz	28.0-29.7	28.0-29.7
No. Elements	4	3
Forward Gain, dBd	10.0	8.0
Front to Back Ratio, dB	30	30
SWR 1.2:1 Typical 2:1 Bandwidth, KHz	>900	>1400
Power Rating, Watts PEP	2000	2000
3 dB Beamwidth, Deg. E Plane	56	57
Side Lobe Attenuation, dB	40	40
Boom Length, ft (m)	16 (4.88)	10 (3.05)
Boom Diameter, In (cm)	2.0 (5.08)	1.63-1.50 (4.1-3.8)
Longest Element, ft (m)	17.58 (5.34)	17.66 (5.38)
Element Center Dia, in (cm)	.88-.63 (2.2-1.6)	.88-.63 (2.2-1.6)
Turning Radius, ft (m)	11.5 (3.5)	10 (3.05)
Mast Size Range, in (cm)	1.5-2.0 (3.8-5.1)	1.5-2.0 (3.8-5.1)
Wind Load, ft^2 (m^2)	3.1 (.29)	2.3 (.21)
Weight, lb (kg)	18 (8.16)	11 (5.00)

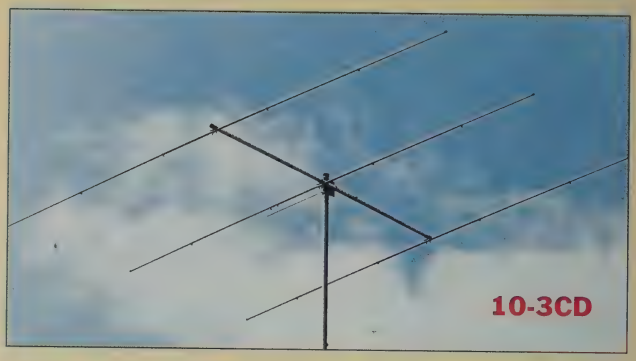
More Performance Than You Ever Imagined

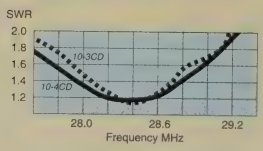
More contacts, less waiting, less interference, and a better signal at the other end are yours with a Skywalker!

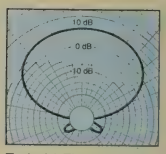
Computer-aided design helped us maximize forward gain while reducing sidelobes and SWR. Our 50 Ohm Reddi-match feed uses a UHF SO-239 for easy connection.

Construction features include improved larger diameter pinned booms with fewer sections, heavy-wall heat treated 6063-T832 aluminum tubing, stainless steel fasteners, worm drive element clamps, and carefully formed aluminum brackets.

Assembly is easy and installation can often be done by one person!
Skywalkers are contest winners. One of these fine antennas is perfect for you.







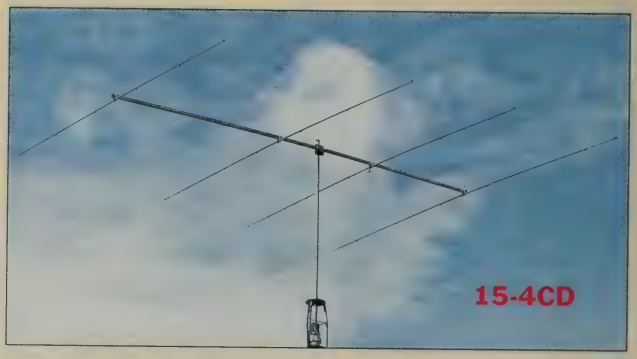
Typical 3 Element Pattern

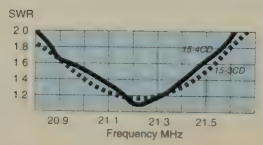
15 Meters

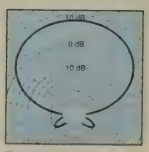
These two Skywalkers will keep you enthusiastic about 15 meters. Our three element model gives fine performance in limited areas. For maximum gain, select the four-element model with its new 2" diameter boom. Or, try stacking two four element Skywalkers for incredible performance! Reddi-match tuning makes it easy.

The 10dB forward gain of our 15-4CD is the result of computer design and will keep you the first in line during pileups!

MODEL	15-4CD	15-3CD
Frequency, MHz	21.0-21.45	21.0-21.45
No. Elements	4	3
Forward Gain, dBd	10.0	8.0
Front to Back Ratio, dB	30	30
SWR 1.2:1 Typical 2:1 Bandwidth, KHz	500	500
Power Rating, Watts PEP	2000	2000
3 dB Beamwidth, Deg. E Plane	56	57
Side Lobe Attenuation, dB	>40	>40
Boom Length, ft (m)	20 (6.10)	14 (4.27)
Boom Diameter, In (cm)	2.0 (5.08)	2.0 (5.08)
Longest Element, ft (m)	23.33 (7.11)	23.16(7.06)
Element Center Dia, in (cm)	1 (2.5)	1 (2.5)
Turning Radius, ft (m)	15.4 (4.72)	13.5 (4.11)
Mast Size Range, in (cm)	1.5-2.0 (3.8-5.1)	1.5-2.0 (3.8-5.1)
Wind Load, ft^2 (m^2)	4.5 (.42)	3.4 (.32)
Weight, lb (kg)	25 (11.34)	20 (9.07)

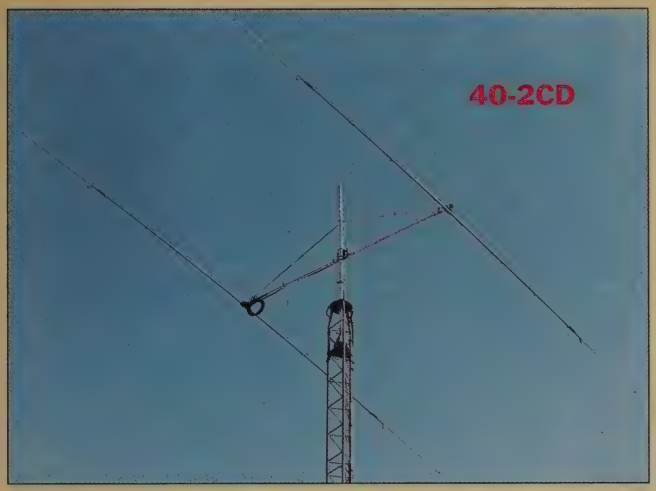


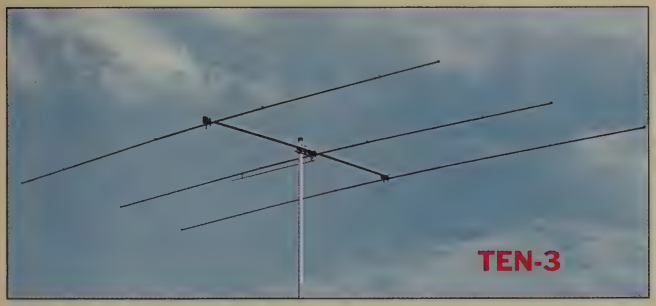




Typical 3 Element Pattern

10, 20, 40 Meters





40 Meters

This Skywalker holds the North American contact record for 40 meters. A two element compact antenna, it has the performance that you want for 7 MHz work. The dipole center insulator is heavy duty with a twin terminal 50 Ohm connection. It is by far the most popular two element 40 meter beam!

20 Meters

Our four-element 20 meter Skywalker and its three element compact version will punch your signal through the QRM.

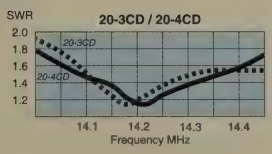
Stainless steel fasteners and double U-bolt brackets ensure that your antenna will last for years.

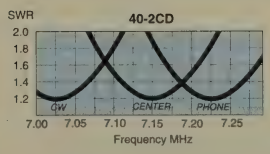
10 Meters TEN-3

Looking for a lightweight, economical alternative to the 10 meter Skywalkers? Choose the TEN-3. Although its popular with novices and technicians, this antenna is for any ham who wants more gain with a good front to back ratio on 10 meters. This antenna has an 8 foot boom making it easy to install on a very simple mount with only a lightweight rotator. The matching system is our proven Reddi Match for 50 Ohm no balun feed and SO-239 connector. Make more positive contacts with the new TEN-3.

MODEL	40-2CD	TEN-3
Frequency, MHz	7.0-7.3	28-29.7
No. Elements	2	3
Forward Gain, dBd	5.5	8
Front to Back Ratio, dB	20	25
SWR 1.2:1 Typical		
2:1 Bandwidth, KHz	200	>1500
Power Rating, Watts PEP	2000	2000
3dB Beamwidth, Degrees		
E Plane	70	64
Side Lobe Attenuation	>40	>40
Boom Length, ft (m)	23(6.9)	8 (2.44)
Boom Diameter, in (cm)	2.13-1.88(5.4-4.8)	1.38-1.25(3.5-3.2)
Longest Element, ft (m)	43 (12.9)	18 (5.49)
Element Center Dia., in (cm)	1.25 (3.1)	.75 (1.9)
Turning Radius, ft (m)	23.93 (7.29)	9.8 (3.0)
Mast Size Range, in (cm)	1.5-2(3.8-5.1)	1.5-2(3.8-5.1)
Wind Load, ft^2 (m^2)	6.38 (.57)	2.0 (.20)
Weight, lb (kg)	44 (19.8)	9.9 (4.45)

MODEL	20-4CD	20-3CD
Frequency, MHz	14.0-14.35	14.0-14.35
No. Elements	4	3
Forward Gain, dBd	10.0	8.0
Front to Back Ratio, dB	30	30
SWR 1.2:1 Typical		
2:1 Bandwidth, KHz	>400	>300
Power Rating, Watts PEP	2000	2000
3dB Beamwidth, Degrees		
E Plane	56	57
Side Lobe Attenuation, dB	>40	>40
Boom Length, ft (m)	32 (9.75)	20 (6.1)
Boom Diameter, in (cm)	2.13-1.88(5.4-4.8)	2.0 (5.08)
Longest Element, ft (m)	36.08 (11.00)	35.95(10.96)
Element Center Dia., in (cm)	1.25 (3.1)	1.25 (3.1)
Turning Radius, ft (m)	23.75 (7.2)	20 (6.1)
Mast Size Range, in (cm)	1.5-2(3.8-5.1)	1.5-2(3.8-5.1)
Wind Load, ft^2 (m^2)	8.1 (.75)	5.5 (.51)
Weight, lb (kg)	55 (24.95)	30 (13.61)





2 Meters

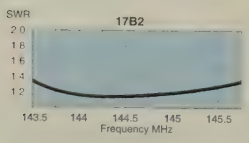
17B2 - 17 Element CW/SSB

The serious two meter operator who is interested in EME, aurora, scatter, SSB, CW, tropo etc, will choose the 17B2. It has 17 elements on a 4.5 wavelength boom. Our computer-aided design supported by precise test range data and the latest manufacturing technology gives you a cleaner pattern and 18 dBd gain in this long boom design. Significant enhancement is provided by the new UltraMatch balanced feed system with N-connector. The improved Boomer brace system is easier to install. 17B2 is a new stronger Boomer with a cleaner profile, less weight and wind load. All these features result in contest winning performance and more day to day operating enjoyment.

13B2 -13 Element Wideband

The new 13B2 is as versatile as the 17B2 is specialized. 13B2 will be your choice for high performance across the entire 2 meter band. New and experienced hams will enjoy 15.8 dBd gain on FM, packet, CW, or sideband across the 4 MHz operating range. The 13B2 is easily mounted vertically or horizontally for maximum performance on your favorite mode. Its optimum boom length makes it a popular antenna that fits just about anywhere. The new UltraMatch balanced feed on the 13B2 provides a 50 Ohm match via a standard SO-239 UHF female connector.

MODEL	13B2	17B2
Frequency, MHz	144-148	144-145
No. Elements	13	17
Forward Gain, dBd	15.8	18.0
Front to Back Ratio, dB	26	26
SWR 1.2:1 Typical		
2:1 Bandwidth, MHz	>4	>2
Power Rating, Watts PEP	2000	2000
3 dB Beamwidth, Degrees		
E Plane	2 x 18	2 x 14.5
H Plane	2 x 19	2 x 15
Side Lobe Atten., dB, E Plane	>60	>60
Boom Length, ft (m)	15 (4.57)	31 (9.45)
Electrical Wavelength	2.2	4.5
Longest Element, in (cm)	39.75 (101)	40.75 (103.5)
Turning Radius, ft (m)	8.9 (2.7)	17.25 (5.26)
Mast Size Range, in (cm)	1.5-2 (3.8-5.1)	1.5-2 (3.8-5.1)
Wind Load, ft^2 (m^2)	1.8 (.17)	3.9 (.36)
Weight, lb (kg)	6.7 (.31)	15.75 (7.14)



Boomers are easily stacked for more gain. See page 17 for details.

"The 13B2 was very easy to assemble. Very good instructions. High quality parts. A very neat looking antenna." (NM8T)

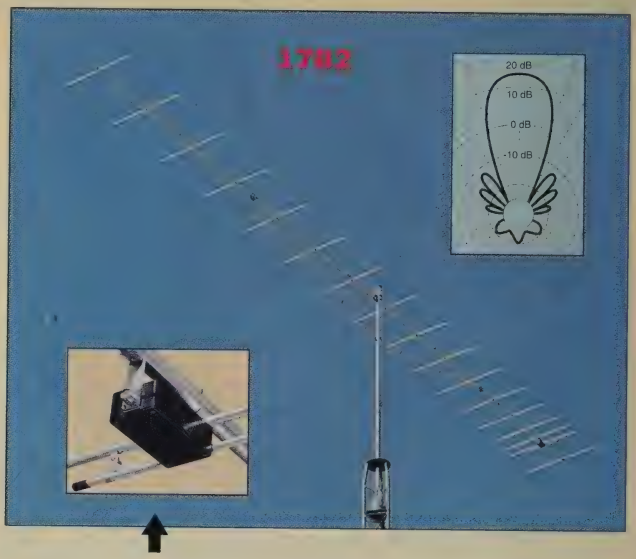
"Reliable contacts [on 13B2] to repeaters 100 miles using low power. Horizontally polarized 150 miles plus." (N9MHV)

"New 17B2 is nice improvement over 4218XL both mechanically and electrically." (VE3ASO)

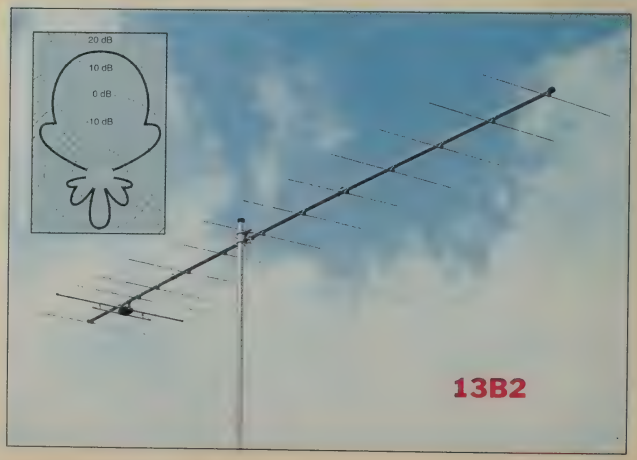
The Boomer tradition continues.

New Boomers offer more gain and cleaner patterns with greater mechanical strength. New element spacings and lengths plus an improved feed system make it happen. Select from the 17B2 for the strongest signal on the low end of the band or the 13B2 for broadband performance across the band.

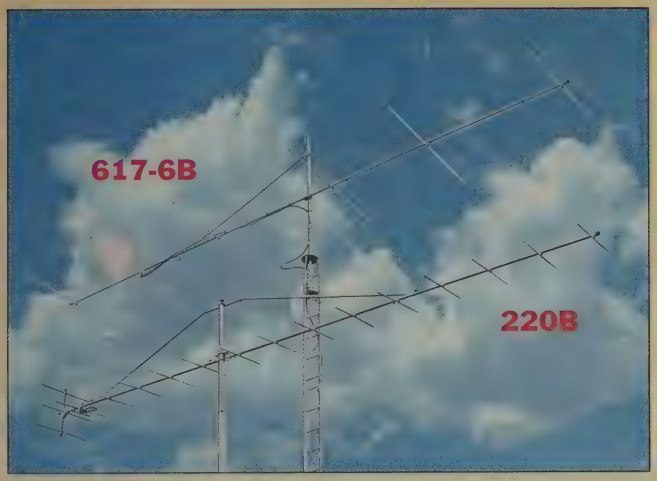
Cushcraft Boomers all feature solid rod elements, stainless steel hardware and very easy to follow assembly instructions. Simple tools and a little time are all that are needed for assembly. The new Boomer line will make your operating time more rewarding and enjoyable. Move up to the new Boomers today.



The new Cushcraft UltraMatch is a modified T-match system that provides a balanced current distribution on your Boomer. It uses UltraLink teflon® dielectric cable allowing for low loss high power applications. UltraMatch is completely enclosed for weather proofing. UltraMatch features an N-connector on the 17B2 and UHF SO239 on the 13B2. When all weather performance is important, you will choose the new UltraMatched Boomers everytime.

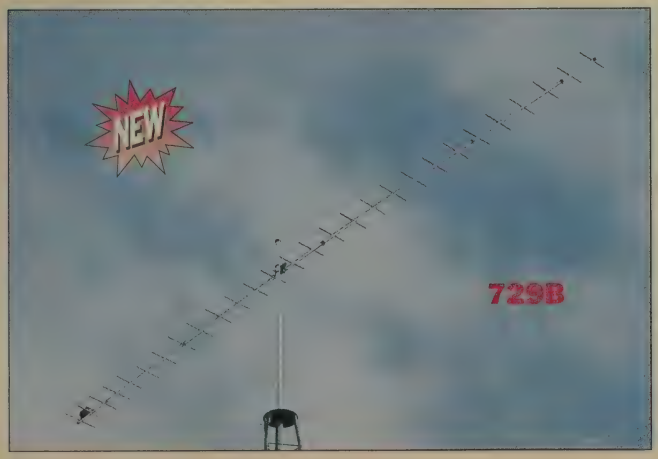


70 CM, 1¼, 6 Meters



Two NEW 70 CM Yagis

These new Cushcraft antennas are designed for easy assembly. The elements are mounted atop the boom with stainless traditional hardware. The feed systems employ a UM4N balun enclosed in a UV stabilized housing. The 719B uses a broadband folded dipole while the 729B utilizes a modified T-match.



1-1/4 Meters

We took the features of our 2 meter antennas and incorporated them into a high-gain 1-1/4 meter antenna that is perfect for this fast growing band. You will have more fun with Cushcraft!

6 Meters

Our 617-6B has more gain than any antenna in its class! The serious 6 meter operator will appreciate the features of this great performing Boomer. Find out for yourself.

MODEL	617-6B	220B
Frequency, MHz	50-51	222-223
No. Elements	6	17
Forward Gain, dBd	14.0	17.2
Front to Back Ratio, dB	30	30
SWR 1.2:1 Typical		
2:1 Bandwidth MHz	>1	>2
Power Rating, Watts PEP	2000	2000
3 dB Beamwidth, Degrees		
E Plane	2 x 19	2 x 13
H Plane	2 x 20	2 x 14
Side Lobe Atten., dB, E Plane	60	60
Boom Length, ft (m)	34 (10.36)	19 (5.8)
Electrical Wavelength	1.7	4.2
Longest Element, in (cm)	117 (297.2)	26 (66.2)
Turning Radius, ft (m)	17.7 (5.39)	9 (2.64)
Mast Size Range, in (cm)	1.5-2 (3.8-5.1)	1.5-2 (3.8-5.1)
Wind Load, ft^2 (m^2)	4.8 (.45)	2.6 (.24)
Weight, lb (kg)	26 (11.79)	10.5 (4.77)

719B FM, CW and SSB 15.5 dBd

Looking for an antenna to enhance performance on all modes of the 70 CM band? The 13.5 foot long 719B is the right choice. Mount it vertical for FM or horizontal for CW and Sideband. The 719B joins the 2 meter 13B2 as a classic for improved performance.

729B CW and SSB 17.8 dBd

This is the new leader in performance for 70 CM activity. Assembly is easy. Tuning is even easier with our modified T-matching network. The modified-T allows for increased bandwidth over conventional T-matches. It includes capacitive elements which allow for more adjustment. Teflon® cable is used for power efficiency. The non-drooping boom does not require a support strut. Mount several in an array for increased gain.

MODEL	719B	729B
Frequency, MHz	430-450	430-440
No. Elements	19	29
Forward Gain, dBd	15.5	17.8
Front to Back Ratio, dB	25	25
SWR 1.2:1 Typical		
2:1 Bandwidth MHz	20	>10
Power Rating, Watts PEP	2000	2000
3 dB Beamwidth, Degrees		
E Plane	24	20
H Plane	19	22
Side Lobe Atten., dB, E Plane	60	60
Boom Length, ft (m)	13.5 (4.1)	22.17 (6.75)
Electrical Wavelength	6	9.8
Longest Element, in (cm)	13.75 (34.9)	13.75 (34.9)
Turning Radius, ft (m)	7.25 (2.2)	12.5 (3.8)
Mast Size Range, in (cm)	1.25-2 (3.2-5.1)	1.25-2 (3.2-5.1)
Wind Load, ft^2(m^2)	1.2 (.11)	2.2 (.21)
Weight, lb (kg)	5.6 (2.55)	8.6 (3.9)

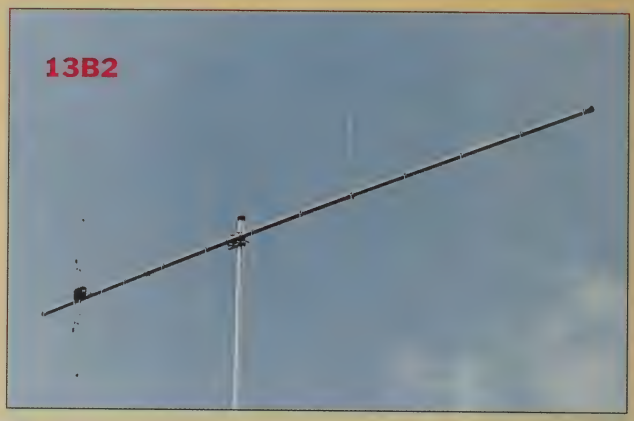
13B2 - 13 Element Wideband

Boomer evolution continues with the 13B2. This new design is lighter weight, lower profile and has more gain and a cleaner pattern. New technicians and experienced hams will enjoy 15.8 dBd gain on FM, packet, CW, or sideband. 13B2 is easily mounted vertically for greatest FM distance and enjoyment. Its optimum boom length makes it a popular antenna that fits almost anywhere. The new balanced UltraMatch provides a 50 Ohm UHF connector for easy feedline attachment. Stronger performance in the 215WB tradition will be yours with the 13B2.

124WB - 4 Element Wideband

This is the right choice for packet systems and other applications requiring a dedicated directional antenna.

All of these antennas give you hot performance with light weight and minimum windload. Stainless steel hardware, solid rod elements and hard drawn aluminum tubing assure you that the antenna will last.



MODEL	124WB	13B2	26B2
Frequency, MHZ	144-148	144-148	144-148
No. Elements	4	13	26
Forward Gain, dBd	10.2	15.8	18.8
Front to Back Ratio, dB	19	26	26
SWR 1.2:1 Typical			
2:1 Bandwidth, MHz	>4	>4	>4
Power Rating, Watts PEP	2000	2000	2000
3dB Beamwidth, Degrees			
E Plane	60	2x18	2x18
H Plane	88	2x19	2x9.5
Side Lobe Attenuation,			
dB, E Plane	40	>60	>60
Boom Length, ft (m)	4 (1.22)	15 (4.57)	15 (4.57)
Electrical Wavelength	.5	2.2	2.2
Longest Element, in (cm)	40.75 (104)	39.75 (101)	39.75 (101)
Turning Radius, ft (m)	4 (1.22)	8.9 (2.7)	10.4 (3.18)
Mast Size Range, in (cm)	1.25-2	1.5-2	1.5-2
	(3.2-5.1)	(3.8-5.1)	(3.8-5.1)
Wind Load, ft^2 (m^2)	.34 (.034)	1.8 (.17)	4.84 (.45)
Weight, lb (kg)	3 (1.36)	6.7 (.31)	21.5 (9.75)

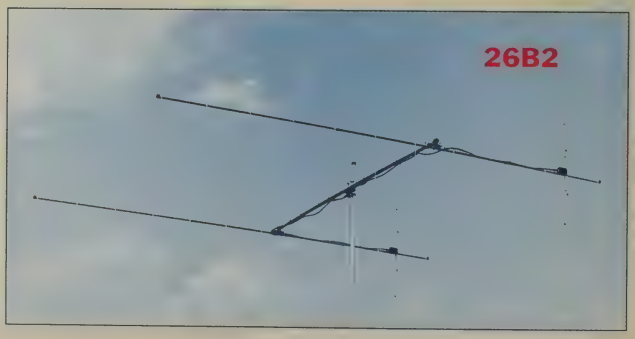
224WB/225WB - 220 MHz Widebands

Perfect for the novice phone band and other 220 MHz operation.

MODEL	224WB	225WB
Frequency, MHZ	222-225	222-225
No. Elements	4	15
Forward Gain, dBd	10.2	15.5
Front to Back Ratio, dB	24	24
SWR 1.2:1 Typical		
2:1 Bandwidth, MHz	>5	>5
Power Rating, Watts PEP	2000	2000
3dB Beamwidth, Degrees		
E Plane	60	2x17
H Plane	88	2x19
Side Lobe Attenuation,		
dB E Plane	40	60
Boom Length, ft (m)	3 (.91)	10 (3.05)
Electrical Wavelength	0.5	2.2
Longest Element, in (cm)	26.7 (68)	26.3 (67)
Turning Radius, ft (m)	3 (.91)	5.8 (1.78)
Mast Size Range, in (cm)	1.25-2	1.25-2
	(3.2-5.1)	(3.2-5.1)
Wind Load, ft^2 (m^2)	.23 (.021)	.95 (.09)
Weight, lb (kg)	1.7 (.77)	5.25 (2.4)

26B2 - 26 Element Wideband

This antenna offers the highest gain of any 2 meter FM antenna in the world. Select the 26B2 when you need to work repeaters or simplex over extreme distances.



Cushcraft brings you the leading edge of dual band technology with new 70cm/2m products - The All-American Dual Bander, a high performance fiberglass base antenna, the long range AR270B and the CS270M mobile mag-mount. These great products will complement our already proven AR270 dual band compact base antenna.

AR-270B 5.5/7.5 dB Dual Band Ringo

This all new model gives very high gain with a low angle of radiation and it is only 7.7 feet (2.35 m) high. The AR270B is computer optimized with two 5/8 wavelength collinear elements on 2 meters and four 5/8 wavelength elements on 70 cm. It is broadbanded for minimum SWR on both bands. It is easy to assemble with three rugged aluminum tubing sections, a durable mast mount and factory sealed coils for best performance.

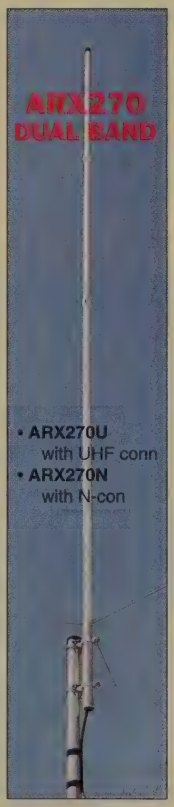
MODEL	AR270		AR270B	
Frequency, MHz	144-148	430-450	144-148	430-450
SWR 1.2:1 Typical				
2:1 Bandwidth, MHz	>4	>15	>4	>15
Gain, dB	3.7	5.5	5.5	7.5
Power, Watts FM	250	250	250	250
Horizontal Radiation Pattern, Degrees	360	360	360	360
Height, ft, (m)	3.75 (1.13)		7.7 (2.3)	
Mast Size Range, in	1.25-2 (3.2-5.1)		1.25-2 (3.2-5.1)	
Radial Length, in (cm)	6.75 (17.1)		6.75 (17.1)	
Wind Load, ft2 (m2)	0.27 (0.03)		0.47 (0.044)	
Weight, lb (kg)	2 (0.9)		2.4 (1.09)	

AR270 3.7 / 5.5 dB Dual Band Ringo

The "Dual Wonder" AR270 is only 3.75 feet (1.1 meters) high. It has great performance for its size, making it the most popular 2m/70 cm base antenna.

All-American Dual Band Ringo

Cushcraft's new ARX270 high performance fiberglass base antenna yields a gain of 9 dB on VHF and 12 dB on UHF. Our exclusive non-metallic UV stabilized couplings result in the cleanest pattern of any dual band antenna. The radome is bright white, thick-wall fiberglass that will survive 90 mph winds. The three section design allows easy assembly and is U.P.S. shippable. Our sleek extruded base clamps eliminate vibration and they look great. Professional features like the factory installed pigtail feed and choice of UHF or N connector makes weather-proof connections easy. These technical innovations put the ARX270 miles ahead. The All-American Dual Bander comes factory tuned and does not require any adjustments. The ultimate in dual-band FM enjoyment can be yours with the ARX270.

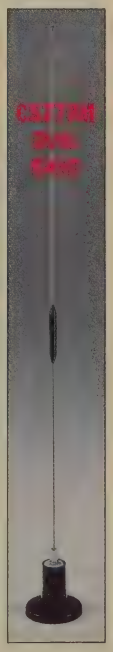


Introducing Cushcraft Gold!

The Gold Standard in Mobile Design!

Style, Performance, and Price. Cushcraft selected an award winning industrial design firm to develop an aesthetically pleasing, unique profile for automotive travel in the 90's, and our RF design team engineered in new standards of quality, performance and features. We call it Cushcraft Gold. This slim-line, aerodynamic design antenna provides 5.5 dB on 440 and 3.7 dB on 2 meters. Cushcraft Gold starts with a solid brass base which is nickel plated, then powder coated to look and work like new for years. The base assembly is engineered to resist shock and vibration. A stainless steel spring and nickel plated base contact assure maximum RF transfer. The weather resistant rubber O-ring around the base, helps keep out moisture and provides for scratch free roof-mounting. Both the base matching network and the center phasing coil are housed, inside temperature and shock-resistant Delrin®. The whip is heavy duty stainless-steel to resist corrosion. We've even included a unique tilt-over feature so you don't have to remove the whip to enter a garage with a low ceiling. This is all the antenna you'll need for years of trouble-free communications. Available with Mag-mount or mount to existing 3/4" roof mount.

MODEL	ARX270U/N	
Frequency, MHz	144-148	430-450
SWR 1.2:1 Typical		
2:1 Bandwidth, MHz	>4	>20
Gain, dB	9	12
Power Rating, Watts FM	200	200
Horizontal Radiation Pattern, Degrees	360	360
Height, ft, (m)	16.5 (5)	
Mast Size Range, in	1.25-2 (3.2-5.1)	
Radial Length, in (cm)	20.5 (52.1)	
Wind Load, ft2 (m2)	0.95 (0.088)	
Weight, lb (kg)	5 (2.3)	



CS270M

70 CM / 2M Mobile

The CS270M offers the most gain possible in its compact size. It has 6 dB on 440 and 3.7 dB on 2 meters all in a 36-1/2" tall design. The small coil is insert molded into the center of the radiator. No moisture can penetrate the coil with this technique. The magnetic mount features a clinging 90 pound pull and a roof-protecting rubber pad. The feed line is double shielded Teflon® UltraLink Cable.™ Its low-loss, high temperature and designed to last. The CS270M has all of the features you will need in a dual-band mobile antenna.

70 CM, 1¼, 2 Meters

Our Ringos are Number One.

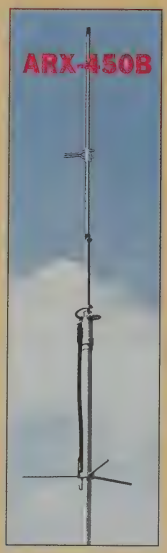
Tough performers at a good price! The Ringo family of dependable, cost-effective antennas has served more hams - from novice to veteran extra - than any other amateur antenna made. Simple, straightforward design, light weight and quick, easy installation make the durable Ringo family right for you. Ringo's top performance and low cost mean more dB per dollar - an equation anyone can appreciate.

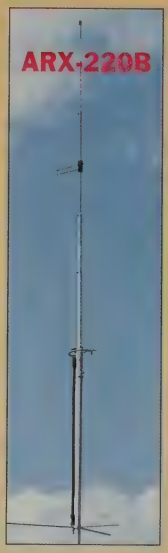
Ringo Ranger II

Our Ringo Ranger II has more gain, less windload, and more mechanical integrity than other two meter antennas. You'll quickly appreciate the benefits of this amazing antenna! Based on the original W1BX Ringo, the Ringo Ranger II is the latest design featuring three 5/8 wave radiating elements and an adjustable 1/8 wave phasing stub. The result is a very low angle of radiation over your coverage area.

The Ringo Ranger II has built-in lightning protection, UV-stabilized insulators, heavy wall tubing, improved decoupling radials to eliminate feedline radiation, and all-weather performance. The ARX-450BN has all the features of the standard antenna plus N-connector.

MODEL	ARX-2B	ARX-220B	ARX-450B
Frequency, MHz	135-160	222-225	435-450
SWR 1.2:1 Typical			
2:1 Bandwidth, MHz	>3	>5	>10
Gain, dB	7.0	7.0	7.0
Power Rating, Watts FM	1000	500	500
Radiation Angle, Deg.	7	7	7
Horizontal Radiation			
Pattern, Degrees	360	360	360
Ring Diameter, in (cm)	5 (12.7)	5 (12.7)	3.5 (8.9)
Radiator Base Dia, in (cm)	.75 (1.9)	.75 (1.9)	.50 (1.2)
Height, ft, (m)	14 (4.3)	9.3 (2.8)	4.9 (1.5)
Mast Size Range, in (cm)	1.0-1.25	1.0-1.25	.75-.88
	(2.54-3.1)	(2.54-3.1)	(1.9-2.22)
Radial Length, in (cm)	20.5 (52.1)	13.75 (33.7)	6.75 (17.1)
Wind Load, ft^2 (m^2)	0.5 (0.05)	0.3 (0.03)	0.2 (0.02)
Weight, lb (kg)	6 (2.7)	5 (2.3)	1 (.45)





Some hams comment on the ARX-2B:
"Since I put this antenna up I have received many compliments on the improvement of my signal." (N3LHP)

"The only antenna I ever installed that worked like it should the first time." (N7PGH)

"ARX-2B is a good antenna for my use on 2 meters FM...Several on the air in my area." (N9OPL)

"ARX-2B...the best antenna." (XE2CLB)

MODEL	A270-10S		A270-6S	
Frequency, MHZ	144-148	430-450	144-148	430-450
No. Elements	5	5	3	3
Forward Gain, dBd	10	10	7.8	7.8
Front to Back Ratio, dB	20	18	20	18
SWR 1.2:1 Typical				
2:1 Bandwidth, MHz	≥4	≥10	≥4	≥20
Power Rating, Watts PEP	350	350	350	350
3dB Beamwidth, Degrees				
E Plane	52	52	66	66
H Plane	60	60	108	108
Boom Length, ft (m)	6.17 (1.9)		2.8 (.85)	
Longest Element, in (cm)	40.3 (102.4)		41 (104.1)	
Turning Radius, ft (m)	6 (1.8)		2.8 (.85)	
Mast Size Range, in (cm)	1.25-2		1.25-2	
	(3.2-5.1)		(3.2-5.1)	
Wind Load, ft^2 (m^2)	.725 (.07)		.3 (.02)	
Weight, lb (kg)	1.8 (.81)		1.7 (.8)	

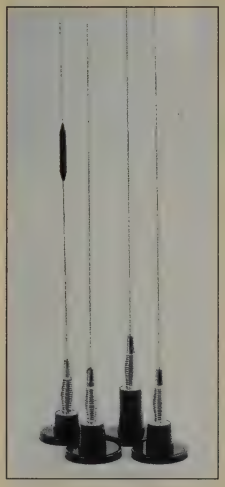
A270-10S and A270-6S
10 and 7.8 dB Dual Band Yagis

Increase your range by selecting one of the new Cushcraft dual band Yagis on 2 meters and 70 cm. You can point the antenna at stations while you are in QSO with them. This will direct more of your output power when transmitting at the same time reducing interference and increasing signal strength when receiving. These antennas are perfect for packet applications. Assembly is a snap with our fully illustrated assembly manuals. The A270-10S has nearly twice the performance of the A270-6S. Select the antenna for your station depending on the distance of your contacts.

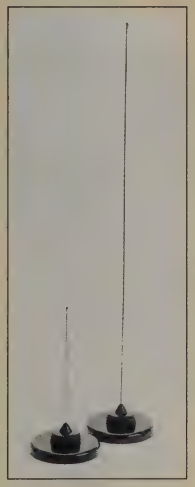
70 CM, 1¼, 2, 6, 10 Meters

Cushcraft/Signals mobiles offer the high performance that you need for consistent and mobile communications such as commuting and public service activities. These antennas are the choice of hams and communications professionals around the world who demand high quality, premium products.

SEE YOUR LOCAL DEALER'S CUSHCRAFT MOBILE DISPLAY

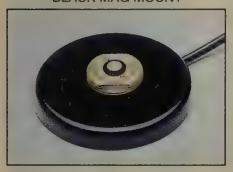


GAIN MOBILE ANTENNAS



QUARTERWAVE MOBILES

BLACK MAG MOUNT



TRUNK LIP MOUNT

UltraLink Cable™

UltraLink™ Cable

Cushcraft UltraLink cable was designed specifically for high efficiency commercial mobile applications to 900 MHz. UltraLink's RG-58 size allows easy installation through the tightest openings, while its Teflon® dielectric provides the highest temperature tolerance to handle vehicle hot-spots that would melt other dielectric materials. Additional 100% shielding is provided by a jacket of easy-peel foil. All this is covered by 97% braid for easy, secure connector attachment. More of your signal will get through with UltraLink than with any other mobile cable.

CS28M Ten Meter Mag-Mount

Work a new country while you wait for the light to change. Introduced just last year, the CS28M ten meter mag-mount has become a constant companion to today's popular 10 meter multimode mobile rigs. The CS28M comes complete, ready to go with a 49" stainless steel whip and spring and a Euro-Style black poly-coated 90 pound pull magnet. A heavy rubber pad protects your car's finish; twelve feet of Cushcraft's own UltraLink™ low-loss cable (specifically designed for commercial mobile applications to 900 MHz) and PL-259 connector are included with the CS-28M.

Gain and Quarterwave Mobile Antennas

Cushcraft's years of commercial and amateur experience apply cutting-edge designs to consistently high quality materials to produce the best mobile antennas you can buy.

All inductors (and even the coil contacts) are silver plated for better RF conductivity, and all Cushcraft mobile hardware is brass to prevent the seizing inherent with inferior, dissimilar-metal joints. All Cushcraft mobile coil housings are ABS, impervious to temperature changes and ultraviolet radiation. Brass base threads, ultrasonically welded into coil housings, eliminate premature failures associated with inferior fastening techniques, and Cushcraft insert-molded 440 MHz phasing coils assure weather-tight integrity. Only Cushcraft mobile antenna mounts are entirely 50 Ohms, eliminating lossy "VSWR bumps" common in many well known designs. Cushcraft quarter-wave models (CS1147 and CS1450) are broadband, require no tuning and include UltraLink™ low loss cable.

Magnetic Mounts

Cushcraft mag-mounts stay where you put them. Our 90 pound pull magnets are the strongest you'll find. Euro-style black poly finish protects against rust, and a tough rubber pad gives maximum protection to your vehicle's finish. Ultra-Link™ cable on all Cushcraft mobile antennas means more of your signal reaches your antenna every time you key the mike.

NEW CS-270M Dual-Band Mobile

See page 10 for a full description of this new 70cm/ 2 meter mag-mount mobile.

Model No.	Frequency MHz	Whip Length in	Whip Length m	Description
CS-270M	144-148/440-450	34	.86	Magnetic
CS-270A	144-148/440-450	34	.86	Coil & Whip
CS-147M	144-174	49	1.25	Magnetic
CS-147T	144-174	49	1.25	Trunk Lip
CS-147	144-174	49	1.25	3/4" Hole
CS-147A	144-174	49	1.25	Coil & Whip
CS-1147M	144-148	20	.5	Magnetic
CS-220M	222-225	33	.84	Magnetic
CS-220T	222-225	33	.84	Trunk Lip
CS-220	222-225	33	.84	3/4" Hole
CS-450M	435-470	29.5	.75	Magnetic
CS-450T	435-470	29.5	.75	Trunk Lip
CS-450	435-470	29.5	.75	3/4" Hole
CS-1450M	430-450	7	.17	Magnetic
CS-50M	46-54	49	1.25	Magnetic
CS-50T	46-54	49	1.25	Trunk Lip
CS-50	46-54	49	1.25	3/4" Hole
CS-28M	28-30	49	1.25	Magnetic

70 CM, 1¼, 2, 6, 10 Meters

cushcraft CORPORATION

Ringo Ranger

NEW ARX-6

The ARX-6 was developed to meet the needs of serious 6 meter FM hams. It has twice the gain of the standard AR-6. If your operating style requires the most gain and wide-area coverage from a repeater or home station, the ARX-6 is made for you.

ARX-2

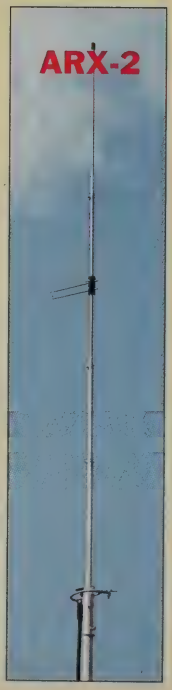
This is the 2 meter antenna that combines good gain with compact size. If space does not allow extra height or decoupling radials, the ARX-2 will do the job.

MODEL	ARX-6	ARX-2
Frequency, MHz	50-54	135-160
SWR 1.2:1 Typical 2:1 Bandwidth, MHz	>4	>6
Gain, dB	5.5	5.5
Pwr Rating, Watts FM	1000	1000
Radiation Angle, Deg.	16	16
Horizontal Radiation Pattern, Degrees	360	360
Ring Diameter, in (cm)	13 (33)	5 (12.7)
Base Dia, in(cm)	2 (5.1)	1.5 (3.8)
Height, ft, (m)	24 (7.3	9.3 (2.8)
Mast Range, in (cm)	1.5-1.75 (3.8-4.4)	1-1.25 (2.54-3.2)
Wind Load, ft^2 (m^2)	1.9 (.18)	.33 (.03)
Weight, lb (kg)	7.5 (3.4)	4 (1.8)

Ringo

These are the original W1BX FM Ringos. If you want a combination of compact size, wide bandwidth, a low radiation angle, these economical antennas are just for you. Since radials are not needed, you can even use our Ringos indoors. Our Ringos are 1/2 wave and include built-in lightning protection. Put up one of these easily installed antennas and start enjoying FM!

MODEL	AR-2	AR-6	AR-10	AR-220	AR-450
Frequency, MHz	135-160	50-54	28-29.7	222-225	440-460
SWR 1.2:1 Typical 2:1 Bandwidth, MHz	10	2	>1.5	10	20
Gain, dB	3.75	3.75	3.75	3.75	3.75
Power Rating, Watts FM	1000	1000	1000	500	500
Radiation Angle, Deg.	16	16	16	16	16
Horizontal Radiation Pattern, Degrees	360	360	360	360	360
Ring Diameter, in (cm)	5 (12.7)	13 (33)	13 (33)	5 (12.7)	3.5 (8.9)
Radiator Base Dia, in(cm)	.75 (1.9)	1 (2.5)	1 (2.5)	.75 (1.9)	.5 (1.3)
Height, ft, (m)	3.9 (1.2)	10.1 (3.1)	17.6 (5.36)	2.6 (.78)	1.4 (.43
Mast Size Range, in (cm)	1-1.25 (2.54-3.1)	1-1.25 (2.54-3.1)	1-1.25 (2.54-3.1)	1-1.25 (2.54-3.1)	.75-.88 (1.9-2.22)
Wind Load, ft^2 (m^2)	.21 (.02)	.37 (.03)	1.68 (.16)	.21 (.02)	.1 (.01)
Weight, lb (kg)	1.5 (.68)	2.5 (1.1)	4 (1.8)	1.2 (.55)	1 (.45)



Four Pole Arrays

Cushcraft's four 1/2 wave dipole array is perfect for your repeater or as a powerful base antenna. Strong through-the-boom dipole mounting ensures long life and superior electrical characteristics. The dipoles mount to your tower's legs or on a separate support mast (not included). They can be arranged for omni or elliptical patterns.

MODEL	AFM-4DA	AFM-24DA	AFM-44DA
Frequency, MHz	144-148	222-225	435-450
Gain, dBd	9 Offset 6 Omni	9 Offset 6 Omni	9 Offset 6 Omni
SWR 1.2:1 Typical 2:1 Bandwidth, MHz	>4	>5	>15
Power Rating, Watts FM	500	500	250
Radiation Angle Degrees	6	6	6
Horizontal Radiation Pattern, Degrees	360-Variable	360-Variable	360-Variable
Height, ft (m)	23 (7.0)	15 (4.5)	8 (2.4)
Mast Size Range, in (cm)	1.5-2.0 (3.8-5.1)	1.5-2.0 (3.8-5.1)	1.25-2.0 (3.2-5.1)
Wind Load, ft^2 (m^2)	2.54 (.24)	1.85 (.17)	1.13 (.11)
Weight, lb (kg)	7 (3.2)	6 (2.7)	5 (2.3)

70 CM, 2 Meters

Performance and Value Leaders

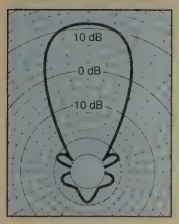
A148-10S and A148-3S are the newest computer optimized models of our 2 meter Yagis. We have improved both the pattern and gain of these antennas to give you better FM coverage. They have direct 50 Ohm Reddi-Match with SO239 connector and stainless steel hardware.

A148-3S is the low priced quality leader for Packet, FM or even portable use. It is easily rear mounted.

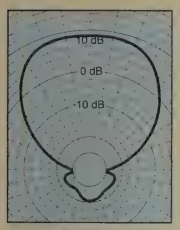
A148-10S is one of our best value designs with excellent gain and front-to-back ratio. Use it for long range FM or full band 2 meter operation.

For even higher gain the all new A148-20S is a complete antenna array with two ten element Yagis, stacking frame, harness and stainless steel hardware.

Model	A148-3S	A148-10S	A148-20S
Frequency, MHz	144-148	144-148	144-148
No. Elements	3	10	20
Forward Gain, dBd	7.8	13.2	16.2
Front to Back Ratio, dB	25	24	24
SWR 1.2:1 Typical			
2:1 Bandwidth, MHz	>5	≥4	≥4
Power Rating, Watts PEP	1000	1000	1000
3dB Beamwidth, Degrees			
E Plane	66	40	20
H Plane	108	46	46
Boom Length, ft (meters)	2.8 (.85)	12(3.6)	12 (3.6)
Longest Element, in (cm)	41 (104.1)	40.3 (102.4)	40.3 (102.4)
Turning Radius, ft (m)	2.8 (.8)	6 (1.8)	6.6 (2.0)
Mast Size Range, in (cm)	1.25-2.0 (3.2-5.1)	1.25-2.0 (3.2-5.1)	1.25-2.0 (3.2-5.1)
Wind Load, ft^2 (m^2)	0.27 (0.02)	1.21 (0.11)	2.82 (0.26)
Weight, lb (kg)	1.5 (0.7)	6 (2.7)	15 (6.8)

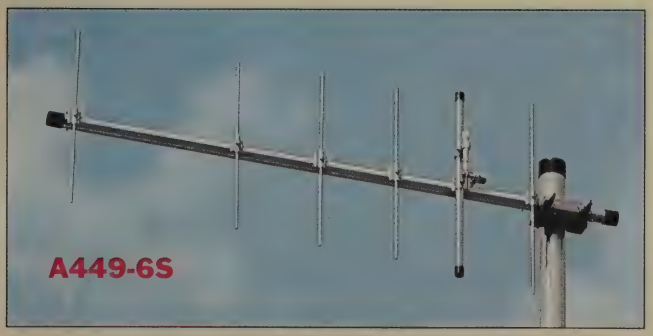


A148-10S



A148-3S

MODEL	A449-6S	A449-11S
Frequency, MHz	440-450	440-450
No. Elements	6	11
Forward Gain, dBd	10.5	13.2
Front to Back Ratio, dB	18	20
SWR 1.2:1 Typical		
2:1 Bandwidth, MHz	>10	>10
Power Rating, Watts PEP	350	350
3dB Beamwidth, Degrees		
E Plane	60	48
Boom Length, ft (m)	2.9 (0.89)	4.2 (1.35)
Longest Element, in (cm)	13 (33)	13 (33)
Turning Radius, ft (m)	2.9 (.89)	2.8 (.85)
Mast Size Range, in (cm)	1.25-2.0 (3.2-5.1)	1.25-1.5 (3.2-3.8)
Wind Load, ft^2 (m^2)	0.30 (0.03)	0.39 (0.04)
Weight, lb (kg)	3 (1.4)	4 (1.8)



Stacking Kits

Our VPK stacking kits for the antennas above are supplied complete with mounting boom, harness, and hardware.

Antenna	Frequency MHz	Complete Kit	Harness Only
A148-3S	144.5-148	A14-VPKS	A14-SK
A148-10S	144.5-148	A148-VPKS	A148-SK
A449-6S	440-450		A449-SK
A449-11S	440-450	A449-VPKS	A449-SK

70 CM, 2 Meters

Reliable satellite communications will be yours with the new Cushcraft OSCAR antennas. The new 22XB two meter and 738XB 70 cm circularly polarized Boomer antennas offer the flexibility you need. Buy them both to create the best station possible or use a single antenna to upgrade an existing installation. Cushcraft provides polarization switches with both antennas. There are no additional options needed. Each antenna includes complete instructions on the mounting and installation of your OSCAR antenna system.

NEW 22XB 2M OSCAR

Stronger signals will link your station with the satellite of your choice. Cushcraft's new 22XB OSCAR Boomer gives you the excellent performance that hams around the world have experienced with the Boomer antenna series. Clean patterns, 14 dBdc gain, superb circularity, and rugged construction are all part of the package. The polarity relay to switch from right to left circular polarization is included. These new designs are resistant to changes brought about by the weather. Construction of the 22XB features all stainless steel hardware. The boom is an extra rugged 1-1/2" diameter 6063-T832 aluminum alloy. Aim your new 22XB at the satellite and you'll be enjoying OSCAR at its best.

NEW 738XB 70 CM OSCAR

Computer aided design and superior engineering are combined to make 738XB the finest 70 CM OSCAR antenna available. The longer boom means more gain. Thirty-eight optimally spaced elements on a rugged 14.3 foot boom mean 15.5 dBdc of gain for your station. Easily overcome the QRM and be on your way to more successful QSO's. Excellent ellipticity means that as the satellite rotates your signals will stay steady. Cushcraft's 738XB features a built-in polarity switcher. All stainless steel hardware, the rugged 6063-T832 aluminum boom, and the weather-sealed polarity switch all add up to the best choice for the serious OSCAR operator. Assemble a winning station by choosing Cushcraft satellite antennas.

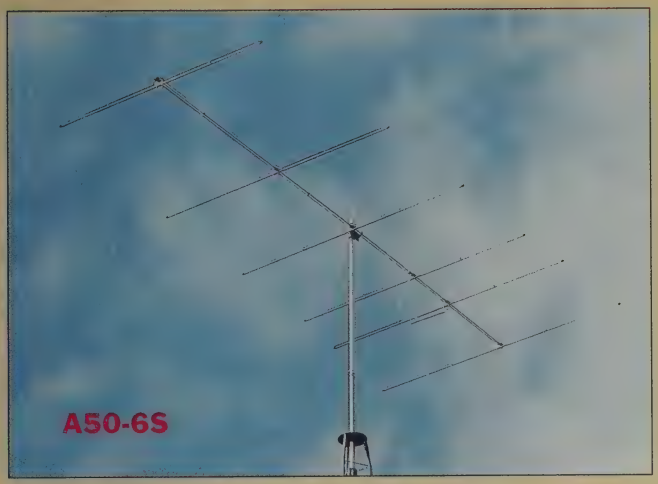
MODEL	22XB	738XB
Frequency, MHz	144-148	432-438
No. Elements	22	38
Forward Gain, dBdc	14	15.5
Front to Back Ratio, dB	25	25
Ellipticity dB at boresight	2	2
SWR 1.2:1 Typical		
2:1 Bandwidth, MHz	4	6
Power Rating, Watts PEP	600	250
3dB Beamwidth, Degrees		
E Plane	30	24
Boom Length, ft (m)	19.33 (5.9)	14.33 (4.37)
Longest Element, in (cm)	39.19 (99.6)	13.94 (35.4)
Turning Radius, ft (m)	11 (3.35)	8.5 (2.6)
Mast Size Range, in (cm)	1.5-2.0 (3.8-5.0)	1.5-2.0 (3.8-5.0)
Wind Load, ft^2 (m^2)	2.6 (.24)	1.4 (.13)
Weight, lb (kg)	11 (5)	7.6 (3.5)
Polarity switch	Included	Included

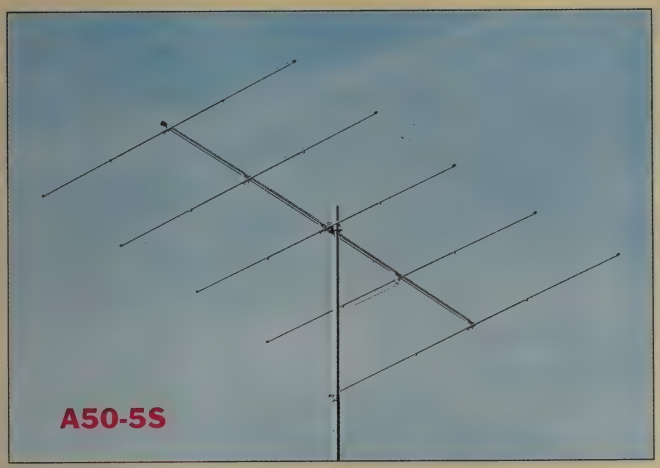
NEW A148-20T 2 Meter Hi-Lo Cross Yagi

Here's the antenna that solves multi-mode problems! Ten vertically polarized and ten horizontally polarized elements provide 11.1 dBd gain covering 144-148 MHz. The horizontal elements handle your CW and SSB needs, while the vertical elements cover FM. Hardware is stainless steel.

A148-20T has a boom length of 11 ft. (3.4m), longest element length of 40.6 in. (103cm), wind area of 1.21 ft^2 (.11m^2), and a mast size of 1.25-2 in. (3.2-5.1 cm).

70 CM, 2, 6 Meters

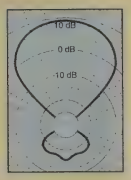




6 Meters

Computer-aided modeling and test range techniques were used by Cushcraft engineers to further optimize the performance of our popular 6 meter Yagis. This process means more gain and cleaner patterns with excellent front-to-back ratios. S-models have very broad bandwidth so they will not detune in bad weather. They feature stainless steel hardware for long trouble-free life. Enjoy the new popularity and exciting contacts on the 6 meter band with one of the S-series Cushcraft Yagis.

MODEL	A50-3S	A50-5S	A50-6S
Frequency, MHZ	50-54	50-54	50-54
No. Elements	3	5	6
Forward Gain, dBd	8	10.5	11.6
Front to Back Ratio, dB	20	24	26
SWR 1.2:1 Typical			
2:1 Bandwidth, MHz	>1	>1	>1
Power Rating, Watts PEP	1000	1000	1000
3dB Beamwidth, Degrees			
E Plane	76	56	48
Boom Length, ft (m)	6 (1.8)	12 (3.7)	20 (6.1)
Longest Element, in (cm)	117 (300)	123 (312)	119 (302)
Turning Radius, ft (m)	6 (1.8)	7.8 (2.37)	11.5 (3.5)
Mast Size Range, in (cm)	1.5-2 (3.8-5.1)	1.5-2 (3.8-5.1)	1.5-2 (3.8-5.1)
Wind Load, ft2 (m2)	1.80 (0.17)	2.9 (0.273)	4.46 (.41)
Weight, lb (kg)	7 (3.2)	11 (5.0)	18 (8.2)



A50-6S RADIATION PATTERN

70 CM / 2 Meters

A148-10S is the latest generation of our incredible 2 meter Yagis. With its computer optimized design it has outstanding gain and pattern. This antenna is for SSB, CW, tropo or any mode. It has all stainless steel hardware and SO-239 connector. Assembly is quick with easy-to-follow instructions.

For 70 cm, the always popular A430-11S has been re-designed with all stainless steel hardware.

MODEL	A144-7S	A148-10S	A430-11S
Frequency	144-146	144-148	430-435
No. Elements	7	10	11
Forward Gain, dBd	11.1	13.2	13.2
Front to Back Ratio, dB	20	24	20
SWR 1.2:1 Typical			
2:1 Bandwidth, MHz	>3	≥4	>10
Power, Watts PEP	1000	1000	350
3dB Beamwidth, Deg.			
E Plane	46	40	38
H Plane		46	
Boom Length, ft (m)	8.2 (2.5)	12 (3.6)	4.7 (1.40
Longest Element, in (cm)	40 (101.6)	40.3 (102.4)	14 (35.5)
Turning Radius, ft (m)	4.9 (1.5)	6 (1.8)	2.6 (.81)
Mast Size Range, in (cm)	1.5-2 (3.8-5.1)	1.25-2.0 (3.2-5.1)	1.25-1.5 (3.1-3.8)
Wind Load, ft^2 (m^2)	0.81 (0.08)	1.21(0.11)	0.42 (.04)
Weight, lb (kg)	4 (1.8)	6 (2.7)	3 (1.4)

Accessories

Fast Acting Gas Discharge Lightning Arresters

Protect your valuable equipment from surges of up to 5,000 amperes with a Cushcraft constant impedance LAC4 arrester! The LAC4 has a replaceable gas discharge tube which clamps voltage surges to less than 50 volts in about 100 nanoseconds-much quicker than the voltage rise time of lightning.

You cannot afford to be without lightning protection. One of the models below is right for your shack.

LAC4	200 Watt with UHF SO-239 connectors
LAC4H	2 kW with UHF SO-239 connectors
LAC4N	200 Watt with N connectors
LAC4NH	2 kW with N connectors
LC2	200 Watt replacement cartridge
LC2KW	2 kW replacement cartridge

Blitz Bug Lightning Arresters

Cushcraft also recommends this well-known series of arresters which are based on a patented three point static discharge design. The Blitz Bug has a sealed air chamber, constant static drain, and controlled voltage discharge.

The Blitz Bug is rated at 2 kw PEP to 500 MHz with negligible insertion loss.

LAC-1	with UHF PL-259 and SO-239 connectors
LAC-2	with UHF SO-239 connectors

Power Dividers For Boomers

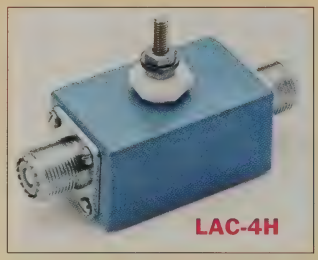
Our power dividers make it a snap to stack Cushcraft Boomers. Models for 17B2 have N-connectors. They are available for these antennas:

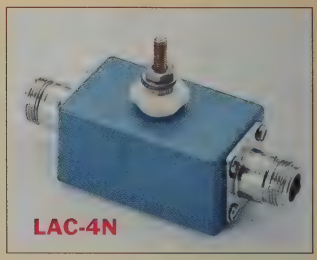
PD-2	for two 13B2, 124WB
PD-2N	for two 17B2
PD-4	for four 13B2
PD-4N	for four 17B2
PD-222	for two 220B, 224WB or 225WB
PD-224	for four 220B, 224WB or 225WB

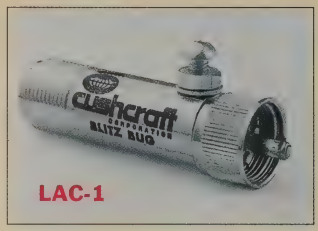
Stacking Harnesses For Boomers

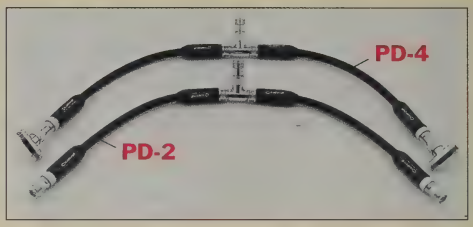
For even easier installation of our Boomers, use our installation kits that are complete with harness and power divider. Models for 17B2 have N-connectors.

617-SK	for two 617-6B's
22-SK	for two 13B2's
22N-SK	for two 17B2's









One year warranty backed by our 40 years of antenna experience.

Cushcraft antennas are designed to survive 80 mph (129 kph) winds.

For safe antenna installations, avoid contact with powerlines.

The use of lightning arresters is highly recommended.

Stainless steel hardware and high grade seamless 6063-T832 tubing used in all antennas.

Support mast, feedline and RF chokes are not included with antennas.

Specifications are subject to change without notice.

All Cushcraft antennas are available through dealers worldwide.

BOOMER STACKING INFORMATION

Antenna	2x617-6B	2x13B2	4x13B2	2x220B	4x220B	2x424B	4x424B	2x17B2	4x17B2
Forward Gain, dBd	17.0	18.8	21.8	19.8	22.4	20.8	23.4	21.0	24.0
Front/Back Ratio	30	24	24	30	30	30	30	24	24
E-Plane Beamwidth,deg	2x17.5	2x18	2x9	2x13	2x6.5	2x9.5	2x4.8	2x14.5	2x7.3
H-Plane Beamwidth, deg	2x10	2x9.5	2x9.5	2x7	2x5.5	2x5.5		2x7.5	2x7.5
Vert, ft	26	9.2	9.2	8	8	5	5	11.5	11.5
(m)	7.92	2.8	2.8	2.44	2.44	1.97	1.97	3.5	3.5
Horiz, ft	-	-	9.6	-	8.5	-	5.5	-	12
(m)	-	-	3.0	-	2.59	-	2.16	-	3.7
Approximate Wt, lb	62	22	44	23	76	15	55	32.5	115
(kg)	28.12	10.00	20.00	10.40	34.40	7.62	24.95	14.8	52.3

ew Clearwater Store employee Pat Sterman (left) with her daughter Danielle erry's niece) & Collie and Len Smith, K4BDP, Manager.

erry, W9DIA joins some of the Hack family at Morton's of Chicago Steak House St. Louis, MO. Left to right: Rodney Carver and Jim Clifford (Project Engineers Special Assistants to Terry) Far left: Mr & Mrs. George Hack, Sr. At the far end Terry, W9DIA. Rear/right: Ron Hack, a partner in the very large and prestigious w firm of Thompson Coburn. Foreground/right: George Hack and Christina terman Hack, Terry's daughter.

erry Sterman, W9DIA & wife Elin, K9YHE Sterman lunching in the Grand anyon desert while looking for a location for a new AES® Branch Store.

Iartha, KD4FAC & Jim Haworth, WA4QPP. Jim is Elin Sterman's (K9YHE) broth- r and a Senior Project Engineer with Time-Warner Cable Co. in Orlando, FL. Shown here together at at the Orlando Store Christmas party.

Some of Nathan Cummings' family (KN4BJ Orlando Store) Talk about–Big Guns!

HRO's Rob, WB6RZK & Bob Ferrero, gather strength for upcoming Dik Dik hunt.

Ray's Las Vegas Birthday Surprize!

Terry, W9DIA getting the Royal Treatment

Shown to the left are two satisfied customers of our Audio Plus division – Marion Timmer and her husband. Marion is Terry's (W9DIA) first-cousin and Godmother. Marion was only 13 when she stood up at Terry's baptisim. She said she almost dropped him when he bit her!

Terry Sterman,W9DIA with Doc Warpinski, N7EKE & wife MaryAnn

The gang at AES, but particularly Terry, lost a valuable long-time friend when Doc Warpinski, N7EKE became a Silent Key. After the funeral, Doc's wife, MaryAnn, wrote Terry and said that Doc considered him to be like his Brother.

We all remember him as the friendly, unassuming doctor/ham that used drive from Green Bay, WI to Milwaukee to visit, talk ham radio and frequently give us free medical advise. In those early days, he was a good promoter for AES. Frequently he would bring a carload of ham buddies from Green Bay, and he always encouraged others in the area to do business with us.

Doc was brilliant, but he never let you know it. He graduated from high school, college and medical school way ahead of schedule, at a very young age. In addition to being a popular doctor with great credentials, he was an Electronic Wizard. He was always informed about the latest innovations in the electronics field. When solid-state was in it's infancy, he would intrigue us with information about new circuits and devices that we, including our service technicians ended up scratching our heads about. Early on, by combining his medical and electronic skills, he became and innovator in the design of medical monitoring equipment.

Doc, in addition to being a general practitioner in Green Bay, WI for many years, was a board-certified asthesiologist in Las Vegas for 21 years and taught at the Nevada School of Medicine. He was 72 when he died after a lengthy illness. He is survived by his wife MaryAnn, 15 children and 37 grandchildren.

Note: When Doc, then W9LON, moved from Green Bay to Las Vega, he gave Terry his Valuable Season Packer tickets. Doc and Terry were both heavy-set with crew-cuts and the neighboring fans at the games would often mistake Terry for Doc. Terry never did charge them for his Expert Medical Advise.

We'll all miss ya Doc! • 73,s from your friend Terry, W9DIA & the Gang at AES.

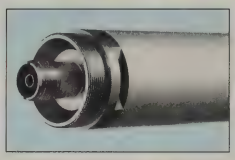
DIAMOND ANTENNAS— THE STANDARD BY WHICH ALL OTHERS ARE JUDGED

Acclaimed as the technological leader in single & multiband antennas

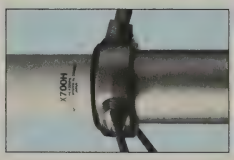
- Wide-band Performance • Factory Adjusted—No Tuning Required • Highest Gain
- UPS Shippable • High Wind Rating • Fiberglass Radome • DC Grounded • Stainless Hardware

X500HNA

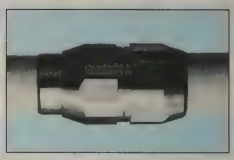
RUGGEDIZED BASE/REPEATER ANTENNA



COAX CONNECTION AT BASE END



HEAVY DUTY BASE/ RADIAL ASSEMBLY



STRONG JOINT COUPLINGS

147MHz

445MHz

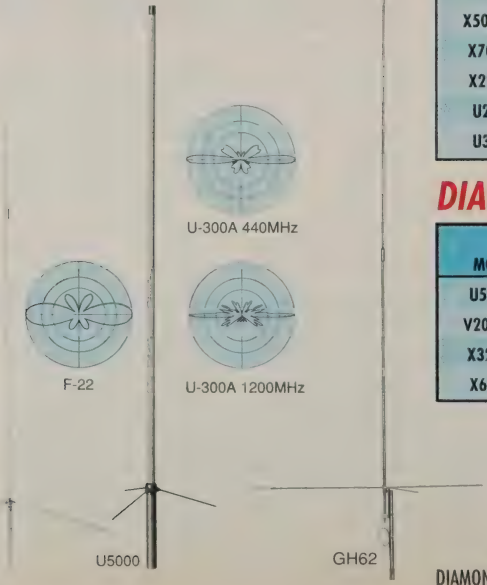
Radiation patterns for X500HNA/X510MA/X510NA

X510

U-300A 440MHz

F-22

U-300A 1200MHz



F22 U5000 GH62

DIAMOND Mono-band Base/Repeater Antennas

MODEL	BAND (MHz)	GAIN (dBd.)	WATTS	CONN.	HT. FT.	RATED WIND MPH (No Ice)
DPGH62[1]	50	6.0	200	UHF	21.0	78
F22A	144	6.7	200	UHF	10.5	112
F23A	144	7.8	200	UHF	15.0	90
F142A	222	5.5	200	UHF	6.0	110
F718A[2]	440	11.5	250	N	15.0	110
F1230A	1240	13.5	100	N	10.5	90

DIAMOND Dual-Band Base/Repeater Antennas

MODEL	BAND (MHz)	GAIN (dBd.)	WATTS	CONN.	HT. FT.	RATED WIND MPH (No Ice)
X50A	144/440	4.5/7.2	200	UHF	5.6	135
X200A	144/440	6.0/8.0	200	UHF	8.3	112
X300A	144/440	6.5/9.0	200	UHF	10.2	112
X510NA[3]	144/440	8.3/11.7	200	N	17.2	90
X510MA	144/440	8.3/11.7	200	UHF	17.0	90
X500HNA	144/440	8.3/11.7	200	N	17.8	90+
X700HA	144/440	9.3/13.0	200	UHF	24.0	90
X2200A	144/222	6.0/7.8	150	UHF	11.5	112
U200A	440/1240	8.3/11.7	100	N	5.9	135
U300A	440/1240	8.6/13.2	100	N	8.3	110

DIAMOND Tri-Band Base/Repeater Antennas

MODEL	BAND (MHz)	GAIN (dBd.)	WATTS	CONN.	HT. FT.	RATED WIND MPH (No Ice)
U5000A	144/440/1240	4.5/8.3/11.7	100	N	5.9	135
V2000A[1,4]	50/144/440	2.1/6.2/8.4	150	UHF	8.3	110
X3200A[5]	144/222/440	6.0/7.8/8.0	100/200	UHF	10.5	112
X6000A	144/440/1240	6.5/9.0/10.0	100/100/60	N	10.5	112

BAND: 144=144-148MHz., 222=222-225MHz., 420=420-430MHz. 430=430-440MHz., 440=440-450MHz., 1240=1240-1300MHz.

Mast requirement: 1.4"-2.4".

[1] 50 MHz antennas are adjustable
[2] F-718A: 440-450MHz., F-718J: 430-440MHz., F718L: 420-430MHz.
[3] X510NJ: 144-147/430-440MHz.
[4] 1/4λ rated in dBi.
[5] 2m: 146-148

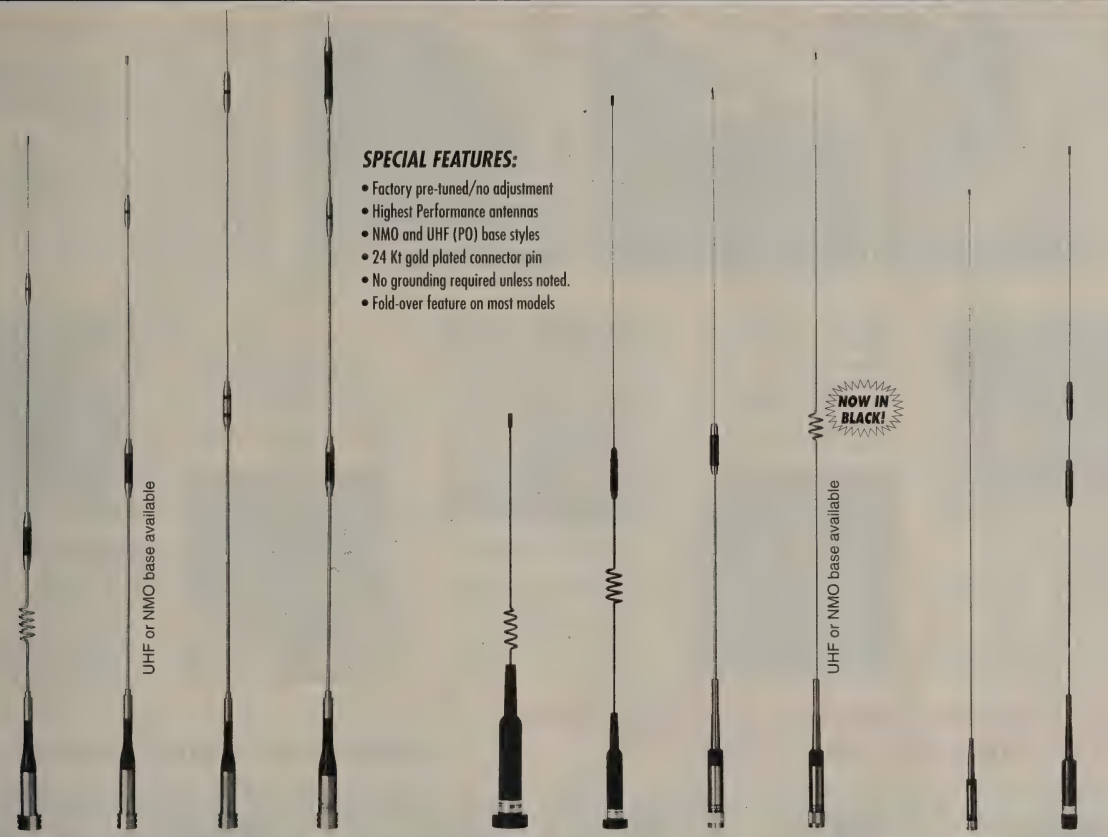
DIAMOND'S STATE-OF-THE-ART VHF/UHF MOBILE ANTENNAS—MAXIMUM PERFORMANCE WITHOUT COMPROMISE!

You've seen the rest...now own the BEST!

DIAMOND ANTENNA

SPECIAL FEATURES:

- Factory pre-tuned/no adjustment
- Highest Performance antennas
- NMO and UHF (PO) base styles
- 24 Kt gold plated connector pin
- No grounding required unless noted.
- Fold-over feature on most models



SG7200NMO | SG7500 SG7500NMO | SG2000 | SG7900 | NR72BNMO | NR73BNMO | NR770R | NR770H NR770HB | CR214S | CR320A

MODEL	BAND	GAIN (dBd.)	WATTS	CONN.	HT. IN.	ELEMENT PHASING
NR72BNMO[6]	2m/70cm	2.15	100	NMO	13.8	1/4λ, 1/2λ
NR73BNMO	2m/70cm	2.15/5.3	100	NMO	33.5	1/2λ, 1-5/8λ
NR770SA[6]	2m/70cm	2.15/2.15	100	UHF	16.9	1/4λ, 1/2λ
NR770HA[7]	2m/70cm	3.0/5.5	200	UHF	40.2	1/2λ, 2-5/8λ
NR770HNMO[8]	2m/70cm	3.0/5.5	200	NMO	38.2	1/2λ, 2-5/8λ
NR770RA	2m/70cm	3.0/5.5	200	UHF	38.6	1/2λ, 2-5/8λ
NR790A*	2m/70cm	4.5/7.2	120	UHF	57.5	6/8λ, 3-5/8λ
SG7000[6]	2m/70cm	2.15/3.8	100	UHF	18.5	1/4λ, 6/8λ
SG7200NMO	2m/70cm	3.2/5.7	150	UHF	36.6	1/2λ, 2-5/8λ
SG7500A	2m/70cm	3.5/6.0	150	UHF	40.6	1/2λ, 2-5/8λ
SG7500NMO	2m/70cm	3.5/6.0	150	NMO	41.0	1/2λ, 2-5/8λ

1/4λ antennas rated in dBi.

MODEL	BAND	GAIN (dBd.)	WATTS	CONN.	HT. IN.	ELEMENT PHASING
SG7900*	2m/70cm	5.0/7.6	150	UHF	62.2	7/8λ, 3-5/8λ
SG2000*	2m	5.2	150	NMO	62.6	7/8λ
SG6000NMO[6,9]	6m	2.1	150	NMO	39	1/4λ
NR140A	1-1/4m	3.8	100	UHF	36.2	5/8λ
NR124	23cm	8.4	100	N	25	4-5/8λ
CR214S[6]	2m/1-1/4m	2.15/3.4	120	UHF	37	1/2λ, 5/8λ
CR224A*[6]	2m/1-1/4m	5.0/6.0	150	UHF	68.5	7/8λ, 2-5/8λ
CR320A[6]	2m/1-1/4m/ 70cm	2.15/3.8/ 5.5	200/ 200/100	UHF	37.4	1/4λ, 1/2λ, 2-5/8λ
CR627B[6,9]	6m/2m/ 70cm	2.1/4.5/ 7.2	120	UHF	60	1/4λ, 1/2+1/4λ/ 3-5/8λ
NR2000NA	2m/70cm/ 23cm	3.15/6.3/ 9.7	100	N	39	1/2λ, 2-5/8λ 5-5/8λ

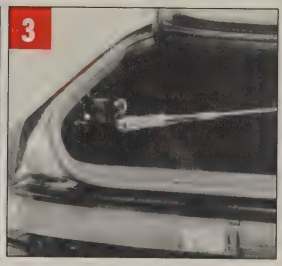
* Not recommended for Magnet Mount
[6] Grounding required.
[7] NR770HB same specifications but in black finish.
[8] NR770HBNMO same specifications but in black finish.
[9] 50MHz antennas adjustable

FOLD-OVER

Patented One-Touch Fold-over Feature
(Not available on NR72BNMO, NR73BNMO or NR770SA.)

PREMIUM GRADE ANTENNA MOUNTS AND DUPLEXERS/TRIPLEXERS BY DIAMOND

Designed for today's high performance antennas



DIAMOND'S NEW HIDE-AWAY ANTENNA MOUNT

As easy as 1, 2, 3—the new K601 Hide-away Mount folds antenna safely into the trunk. Fully adjustable, fits most vehicles.

Color: Black. Choice of NMO or UHF base.

Recommended antennas: NR738MNO, NR770HNMO, NR770H8NMO, SG7200NMO, NR770HA, NR770HB, NR770RA, SG7500A & SG7500NMO.

Cable: 6.5' RG316 Teflon coax & PL-259

K601M—UHF Base **K601NMO**—NMO Base
C110, 10' extension cable for front radio installations

K400 HATCHBACK/DOOR/TRUNK LID MOUNT

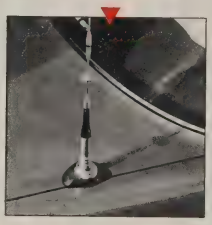
Diamond's deluxe heavy duty mount. Two-axis adjustable. Recommended for high gain VHF/UHF antennas.

K400C* SO-239 base, 6.5' coax & PL-259
K400CNMO* NMO base, 6.5' coax & PL-259
K400N Type-N base, 13.5' coax & PL-259
*Use C110, for front radio installations.

K600 VARIABLE ANGLE TRUNK MOUNT

Deluxe aerodynamic trunk mount. Vertical adjustment range 0-9%. Four set screw, stainless steel mount assembly.

K600M SO-239 base, 16.5' coax & PL-259
K600P SO-239 base, 16.5' coax & type N



K540 MIRROR/LUGGAGE RACK MOUNT

Adjustable Mirror/luggage rack mount accepts 1/2" to 7/8" tubing. Fits most mirrors and utility racks.

K540KM SO-239 base, 16.5' coax & PL-259
K540 Mount Only

K550 LUGGAGE RACK MOUNT

Adjustable luggage rack mount for new mini-vans.

K550M SO-239 base, 16.5' coax & PL-259
K550 Mount Only

PREMIUM MAGNET MOUNT BASE

Heavy duty 2.2 lb./4" magnet mount. Rated 25-500MHz. Recommended for antennas under 45".

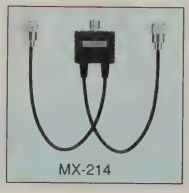
SPM-35 SO-239 base, 13' coax & PL-259
DP-SPM/S8U SO-239 base, 13' coax & PL-259
DPK-4NM-M SO-239 base, 13' coax & type-N
DPK-4NM-N Type- N base, 13' coax & Type-N

DUPLEXERS AND TRIPLEXERS FOR COMBINING AND SPLITTING VHF/UHF FREQUENCIES

• Lowest loss • Maximum Band Isolation • Low VSWR

MX-72D/DN

MX-72H/N


MX-214

MX-324/MX2000

MX-3000D/DN

MX-3000N

MODEL	MX37	MX72D	MX72DN	MX72H	MX72N	MX72J	MX214	MX214D	MX324	MX324D	MX2000	MX2000D	MX3000	MX3000N	MX3000D	MX3000DN
FREQUENCY BAND (MHz)	1.6-470 900-1300	LPF 1.6-30		140-150	HPF 400-460		140-150 220-225		LPF 1.5-150	BPF 220-225 / HPF 400-550	LPF 1.6-60	BPF 110-170 / HPF 300-950	LPF 1.6-160		BPF 350-500	HPF 850-1300
PWR CW (ICAS)	100/50	400		150	100	400	150/100						400		200	100
WATTS P.E.P.	200/100	1000		400	250	800	300/200		800	600 / 500	800	800 / 500	800		400	200
THRU LOSS/dB	0.25/0.45	0.15		0.15	0.25		0.3/0.4		0.3	0.4 / 0.4	0.15	0.2 / 0.25	0.2		0.3	0.4
ISOL	45dB	60dB					45dB		40-50dB		60dB		55dB			
VSWR	1.2:1	1.2:1					1.2:1		1.2:1		1.2:1		1.2:1			
CONNECTOR COMPLEMENT	(N) MIX 430 1200 (M) (N)	(M) MIX 144 430 (M) (M)	(M) MIX 144 430 (M) (N)	(M) MIX 144 430 (M) (M)	(M) MIX 144 430 (M) (N)	(M) MIX 144 430 (M) (M)	(M) MIX 144 220 (M) (M)	(M) MIX 144 220 (M) (M)	(M) MIX 144 220 430 (M) (M) (M)	(M) MIX 144 220 430 (M) (M) (M)	(M) 50 144 430 (M) (M) (M)	(M) MIX 50 144 430 (M) (M) (M)	(N) MIX 144 430 1200 (M) (M) (N)	(N) MIX 144 430 1200 (M) (N) (N)	(N) MIX 144 430 1200 (M) (N) (N)	(N) MIX 144 430 1200 (M) (N) (N)
CONNECTOR	12" Cable w/ Connectors	Direct		12" Cable w/Connectors		Direct all SO-239	12" Cable w/Connectors	Direct	12"Cable w/Connectors	Direct	12" Cable w/Connectors	Direct	12" Cable w/Connectors		Direct	

NOTE: Connectors shown as "M" are low loss equivalent of SO-239 & PL-259. Connectors shown as "N" are standard Type-N.

NEW IDEAS FROM DIAMOND
HF/VHF MULTIBAND MOBILE ANTENNAS
HIGH EFFICIENCY & SCANNER ANTENNAS

DIAMOND ANTENNA

NEW!

DIAMOND MV3A MOBILE ANTENNA SYSTEM

For New HF/VHF transceivers.

MV3A has 4 band capability — 2m, 6m, plus two HF bands through use of loading coils.

Bands Supplied: 10m/6m/2m
Opt. Loading Coils: 40m/20m/17m/15m
Power, P.E.P.: HF 120w/VHF 200w
Mount Connection: UHF
Length: 57″
SWR: 1.5:1 nominal

OPTIONAL LOADING COILS

HVC7	40m
HVC14	20m
HVC18	17m
HVC21	15m

Recommended Antenna Mounts: K400C or K600M (see previous page)

MX62M DUPLEXER SPECIFICATIONS:

HF/6m & 2m duplexer.
1.6-56 MHz LPF
76-470 MHz HPF
(76-120 receive only)
Watts: 600 P.E.P.
Loss: .2 dB LPF
.3 dB HPF
Isol.: 50 dB

Popular HF/VHF Mobile Transceivers; i.e. IC706, etc. (Or combine your 2m & HF)

DIAMOND D-130 Discone

The D-130 Super Discone Antenna is an ultra-wideband antenna covering amateur radio, air traffic control and other various utility frequency bands. Rust-free stainless steel is employed in major component parts making the antenna rust resistant and durable.

DESCRIPTION

- Ultra-wideband design 25 to 1300 MHz receive.
- Compact and lightweight design enables the antenna to be installed on balcony railing at an apartment or condominium.
- Transmit on 2 m, 1 1/4 m, 70 cm, 33 cm and 23 cm amateur bands.
- The D-130 can be made further compact and lightweight by removing the top loading coil if 25-50 MHz is not required.

SPECIFICATIONS

Frequency range 25 to 1300MHz receive
100 to 1300 MHz transmit
Length 1.7 m (66.9″)
Weight 1 kg (2.2 lbs.)
Max. length 0.41 m (16.1″)
Mast diameter 25 to 52 mm (0.98″ to 2.05″) with supplied mounting brackets
Max. power 200 w, 100-1300 MHz

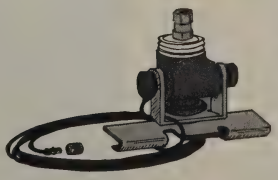
DIAMOND Receiving/Scanner Antennas

MODEL	DESCRIPTION	RELATIVE GAIN
RH3	2m/70cm dual band "Black Bullet" HT antenna. 1.75″ BNC. 120 to 900 receive.	-2 dB
RH77CA	High gain 2m/70cm dual band HT antenna. Receive range to 900 MHz. BNC	+6 dB
RH951	High gain 2m/70cm/23cm tri-band HT antenna. BNC (Wide band receive)	+6 dB
RH707	2m/70cm dual band - tiltable whip - HT antenna. 8 1/4″ BNC.	+3 dB
RH205	2m HT antenna, telescopic, 5/8λ fully extended, 47.5″; 1/4λ retracted, 9″	+9 dB
RH770	2m/70cm dual band - telescopic - HT antenna. BNC 36″ fully extended.	+8 dB
D130J	Wideband discone 25-1300 MHz. 200 W transmit 50-1300 MHz.	N/A

Drawings not to scale.

MODEL	DESCRIPTION
CX-210A	Heavy duty wideband coax switch, DC-1000 MHz. 1.5 kW, SO-239
CX-210N	Heavy duty wideband coax switch, dc-1500 MHz. 1.5 kW, Type N
DL-30A	Dummy load, DC-500 MHz. 15w average/100w peak. PL-259

Special Trunk Mount for 3/8x24 thread Antennas



Ideal mount for Outbacker Perth, OB Jr., and other medium weight antennas.

Note: use C110, 10 ft extension for front radio installation.

Adjustment: 2 axis
Power: 350 watts RMS 500 w P.E.P.
Cable: 6 1/2′ RG316 teflon coax w/PL-259
Spring recommended for stiff/heavy antennas.

GAP: THE PERFECT ANTENNA

We at GAP realize there isn't a perfect antenna. No singular antenna will scream DX on 80 and be the best for local nets on 10. If anyone tells you there is, beware! The perfect antenna does not exist, but the right one for you may. If you want something to bust the pile on the low bands, then consider the Voyager. Just starting out in ham radio and need a great general coverage antenna, the Challenger is easy to assemble and for little effort will yield superior performance, especially on DX. Maybe you knowingly or unknowingly moved into one of those "restricted areas" where the Eagle's limited visibility, but unlimited ability is desired.

Eagle DX

Challenger DX

Voyager DX

This chart helps you select the right GAP antenna. When comparing GAPs, bandwidth is not a concern. With few exceptions, a GAP yields continuous coverage under 2:1 for the **ENTIRE BAND**.

All antennas utilize a GAP elevated asymmetric feed. A major benefit is the virtual elimination of the earth loss, so more RF radiates into the air instead of the ground. This feed is why a GAP requires **NO RADIALS**. Just as elevating a GAP offers no significant improvement to its performance, adding radials won't either, making set up a breeze.

A GAP antenna has no traps, coils or transformers. This is important. The greatest sources of failure in multiband antennas are these devices. Perhaps you heard someone discuss a trap that had melted, arced or became full of water. Improvements to these inherent problems are the focus of the antenna manufacturer, while the basic design of the antenna remains unchanged. **GAP improved the trap by eliminating it!** Removing these devices means they don't have to be tuned and, more importantly, won't be detuned by the first ice or rain. The absence of these devices improves antenna reliability, stability and increases bandwidth.

Another major advantage to a GAP antenna is its NO tune feature. Screws are simply inserted into predrilled holes with a supplied nutdriver.

The secret is out and people in the know say:

CQ–"The GAP consistently outperformed base-fed antennas...and was quieter."

73–"This is a real DX antenna, much quieter than other verticals."

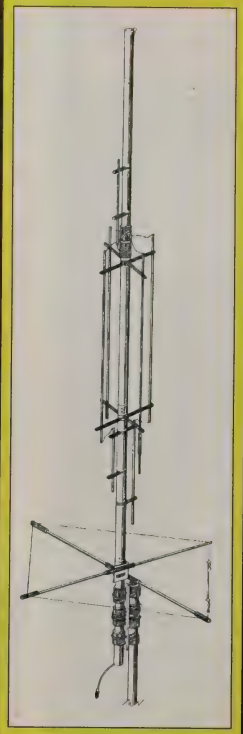
RF–"To say this antenna is effective would be a real understatement. Switching back and forth on 40m between another multiband HF vertical and the GAP, there was no comparison. Signals were always stronger on the GAP, sometimes by S units, not just DB's."

Worldradio – "These guys have solved the problem associated with verticals. That is, an awful lot of RF is wallowing around and dropping into the dirt instead of going outward bound. A half-wave vertical does need radials if it is end fed (at the bottom). But the same half-wave vertical does not (as much, hardly at all) if is fed in the center."

IEEE–"Near field and power density analyses show another advantage of this antenna (asymmetric vertical dipole): it decreases the power density close to the ground, and so avoids power dissipation in the soil below it. The input impedance is very stable and almost independent of ground conductivity. This antenna can operate with high radiation efficiency in the MF AM standard broadcast band, without the classical buried ground plane, so as to yield easier installation and maintenance."

MODEL	BANDS OF OPERATION											HT	WT	MOUNT	COUNTER-POISE	COST
	2m	6m	10m	12m	15m	17m	20m	30m	40m	80m	160m					
Challenger DX	■	■	■	■	■		■		■	■		31.5'	21 lbs	Drop In Ground Mount	3 Wires @ 25'	$259
Eagle DX			■	■	■	■	■		■			21.5'	19 lbs	1-1/4" pipe	80" Rigid	$269
Titan DX (Just Released)			■	■	■	■	■	■	■	■		25'	25 lbs	1-1/4" pipe	80" Rigid	$289
Voyager DX							■		■	■	■	45'	39 lbs	Hinged Base	3 Wires @ 57'	$399

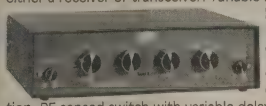
New Release: TITAN DX



This all purpose antenna is designed to operate 10m-80m, WARC bands included. It sits on a 1-1/4" pipe and can be mounted close to the ground or up on a roof. Its bandwidth and no tune feature make it an ideal antenna for the limited space environment as well as a terrific addition to the antenna farm.

AMECO ACCESSORIES BOOKS CODE COURSES

▶**PT-3 Preamplifier** Covers 160 thru 6 meters, useable with either a receiver or transceiver. Tunable low noise dual gate FET circuit provides more than 20dB gain with low noise figure and improved spurious and image rejection. RF sensed switch with variable delay automatically bypasses to the antenna on transmit. Second receiver and antenna capability. 12V DC. 2½"h x 8¾"w x 6½"d **$119.95**

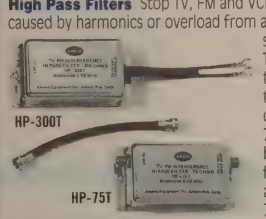


▶**P-12T** AC adapter for PT-3 ..... **$9.95**

▶**TPA Tunable Preamplifier/Active Antenna** Can be used as a preamplifier to improve the gain of a receiver, or as an indoor active antenna. Covers 0.22 to 30MHz in 5 bands. Dual-gate FET provides an excellent noise figure and over 20 dB gain. Matches most antennas – long wire, 300Ω and random lengths can be used with good results. With no external antenna the supplied 30" whip antenna gives good results in outside antenna as a tunable preamplifier with more than 20dB gain and low noise figure, or as an effective indoor active antenna using the built-in 30" collapsible whip. Requires 9V battery or AC adapter.1½ "h x 8"w x 6½"d .. **$69.95**

▶**P-9T** AC adapter for TPA **$9.50**

High Pass Filters Stop TV, FM and VCR interference caused by harmonics or overload from amateur transmissions, etc. Installs at TV or VCR antenna terminal. or connector. Sharp frequency cutoff at 52MHz with 70dB attenuation below 50MHz. Models for 75Ω or 300Ω TV antenna lead-ins or 75Ω cable systems.

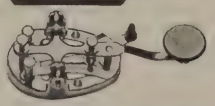


▶**Model HP-300T** (300Ω) • ▶**HP-75T** (75Ω) ..... each **$12.95**

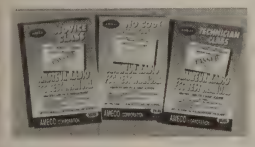
▶**OCM-2** Combination Code Practice Oscillator and CW Monitor with volume control, 3" speaker, and headphone terminals. Requires a code key and 9V battery.
Kit **$19.95** • Wired **$24.95**

▶**K-1** Low-cost general purpose key with phenolic base, adjustable tension and contact spacing... **$9.95**

▶**K-4** Deluxe high quality key. Polished brass base, and shorting bar **$14.95**



FCC Test Manuals New revised editions Incorporating all the latest changes in FCC amateur radio test preparation requirements. Separate manuals are available for the Novice, Technician and the New No-Code Technician Classes All current FCC examination questions for each class, with corresponding multiple choice answers. See AMECO in the Price List

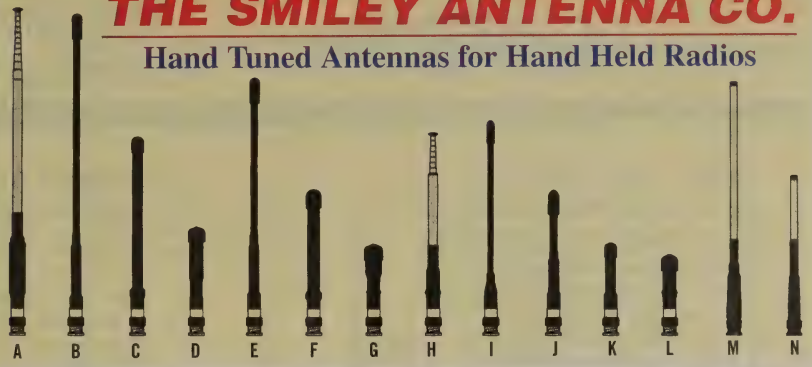


▶**107-PC-2** The complete Morse Code Instructor for IBM PC/XT/AT or compatible. Menu driven, contains over 18 options, on-line "help" screens. Generates random characters, numbers and punctuation at any speed and tone. Generates true random QSO's, similar to FCC/VEC exams at any speed and tone. Sends text from any external data file & more! Ideal for the beginner **$29.95**

See Price list for more AMECO Publications & Code Courses

THE SMILEY ANTENNA CO.

Hand Tuned Antennas for Hand Held Radios



Each Smiley handheld antenna is individually hand tuned to resonance at band center under normal operating conditions. (No ground plane – No radials). Manufactured from the finest heat-treated copper plated spring steel coils. Cold rubber compound is used for coil insulation and a neoprene heat-shrink coating applied for strength and endurance. All have BNC connectors.

▶**THIN STICK** 1/4 wave telescoping dual band antenna for 144 and 220MHz bands ..... **(TS) $16.95**

▶**SUPER STICK II (A)** 2 meter, 5/8-wave, flexible base loaded telescoping antenna. 6-9db gain fully extended (54"); usable fully collapsed, or one section 1/4 wave. Length: 54" extended, 10" collapsed ..... **(SS-II) $19.95**

▶**SUPER STICK II COMBO** As above but includes a 2 meter Stubby Duck antenna (D) ..... **(SS-II/COMBO) $26.95**

▶**5/8 SLIM DUCK (B)** 2-meter, 5/8-wave, 7db gain, flexible base loaded antenna. 12" long ..... **(5/8 SLD-2) $17.95**

▶**5/8 SLIM DUCK COMBO** As above, but includes a 2 meter Stubby Duck antenna (D) ..... **(5/8 SLD-2 COMBO) $24.95**

▶**REGULAR DUCK (C)** For 2 meters. Tuned Ducks show a 3db gain over other Rubber Ducks because they are impedance matched for hand-helds. ..... **(RD-2) $14.95**

▶**STUBBY DUCK (D)** Tuned, efficient, for 2M **(RDS-2) $14.95**

▶**SUPER STICK III** 220MHz 5/8-wave, flexible base loaded telescoping antenna. 6-9db gain extended; usable collapsed, or a one section 1/4 wave. 36" extended, 8¾" collapsed **(SS-III) $19.95**

▶**SUPER STICK III/COMBO** As above but includes a 220MHz Stubby Duck antenna (G) ..... **(SS-III/COMBO) $26.95**

▶**5/8 SLIM DUCK (E)** 220MHz, 7db gain, flexible base loaded antenna. Length: 9" ..... **(5/8 SLD-220) $17.95**

▶**5/8 SLIM DUCK COMBO** As above, but includes a 220MHz Stubby Duck (G) ..... **(5/8 SLD-220 COMBO) $24.95**

▶**REGULAR DUCK (F)** Tuned for 220MHz ... **(RD-220) $14.95**

▶**STUBBY DUCK (G)** Tuned for 220MHz .... **(RDS-220) $14.95**

▶**SUPER STICK IV (H)** 440MHz 5/8-wave, flexible base loaded telescoping antenna. 6-9db gain extended; usable collapsed. 18" extended, 5¾" collapsed ..... **(SS-IV) $19.95**

▶**SUPER STICK IV COMBO** As above, but includes a 440MHz Stubby Duck (K) ..... **(SS-IV/COMBO) $26.95**

▶**SLIMLINE (I)** 440MHz, 1/4-wave flexible ant **(SL-440) $12.95**

▶**5/8 SLIM DUCK (J)** 440MHz, 7db gain, flexible base loaded antenna. Length: 5" ..... **(5/8 SLD-440) $17.95**

▶**5/8 SLIM DUCK COMBO** As above, but includes a 440MHz Stubby Duck (K) ..... **(5/8 SLD-440 COMBO) $24.95**

▶**STUBBY DUCK (K)** Tuned for 440MHz .... **(RDS-440) $14.95**

▶**MINI DUCK (L)** Tuned for 440MHz ..... **(RDMD-440) $14.95**

▶**FLEX-COIL (M)** 2 meter, 1/2-wave, 7-9 dB gain, flexible base 35" fully extended ..... **(FLX 1/2 WAV2M) $25.95**

▶**270A (N)** Telescoping 2m/440 gain antenna. 1/4-wave (2m) 5/8-wave (440 MHz) **$19.95**

▶**TAQ** 1/4-wave whip, specify **2M, 220** or **440MHz** **$10.95**

There's a Smiley for your every need!

PALOMAR Engineers

▶**PCM-1 RF Current Meter** Measures RF current, 1–30MHz. This clamp-on instrument allows you to check: Radial systems to find broken radials.; Antenna and feedline currents; Currents on coax shields and any wire up to 1/2" diameter. Three Ranges: 100ma, 1 amp and 5 amp full scale. Compact, handheld, 9V battery operated for use right at your antenna. 6"w x 2"h x 2"d, 9 oz. **$119.95**

▶**PT-340 Tuner-Tuner** Eliminate QRM and overheated final tubes and devices by adjusting your station antenna tuner without transmitting. Installs permanently between rig and antenna tuner. Turn it on, and listen to the noise output in your receiver, adjust your station tuner for a dip in the noise (null); that's it! Covers 1.7 to 30MHz. Requires 9V battery. 6"w x 5"h x 3"d **$99.95**

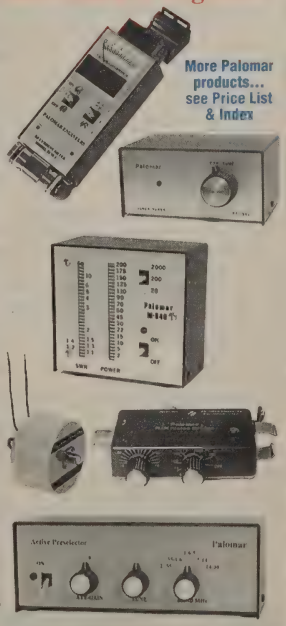
▶**M-840 SWR & Power Meter** Two 30-segment LED displays show PEP or average power and SWR instantaneously and simultaneously, without calibration – just select the proper power range. Covers 1 to 30MHz with 2, 20, 200 and 2000 watt power ranges. Shows VSWR 1.0 to 10:1+. Remote sensor with 6 ft. cable. Requires 10-15 VDC @ 800ma. 4¼"w x 4¼"h x 2¼"d, 1 lb. **$189.95**

▶**RX-100 Noise Bridge** Just one measurement tells if your antenna is resonant, and if not, whether it is too long or too short. Shows resistance and reactance of coax fed antennas from 1–100MHz. Install between receiver and feedline. Tune receiver to frequency and adjust controls for a noise null and interpret the readings according to instructions. Useful for off-the-air tune-up of transmitters and tuners, and to adjust tuned circuit resonance. Uses 9V battery. 5¾"w x 3"d x 1¼"h **$79.95**

▶ **SMB-5 Software program for AT-compatible computers.** Uses RX-100 noise bridge readings taken at the transmitter to compute and plot antenna resistance, reactance and SWR. On 3-1/2" disk with manual **$29.95**

▶**SB-4 Balun** Matches 50Ω to 200Ω. For high SWR applications in multi-band dipoles, tuners, open wire line to coax conversions. Covers 1.7–30MHz, rated for 6KW PEP or 2KW CW up to 10:1 SWR. Teflon insulation, epoxy encapsulated, stainless steel eyebolt on top for support. 4" diameter x 4" high, 2 lbs **$79.95**

▶**P-508 Active Preselector** Installs between receiver and antenna system. Covers 200kHz–30MHz. High-Q tuned circuits reduce or eliminate interfering signals on the shortwave bands. New FET-Bipolar amplifier provides over 20dB gain and tolerates strong local signals without overload far better than older dual-gate technology. 9-15V DC. SO-239 connectors. 2½"h x 7¼"w x 2½"d, 0.8 lb **$99.95**



VHF and UHF Fixed Station Vertical Antenna

Model G6-270R Dual-band Base Antenna for 2 Meter and 440 MHz.

Created from the same design as the G7 and G6 series. Rugged and Solid fiberglass construction.
Optimum Gain and Wide Bandwidth. Consists of 5/8 λ over 5/8 λ on 2M and 4 x 5/8 λ on 440 MHz.

- Length: 7ft. 6 in.
- Weight: 5.3 lbs.
- Wind Survival: 100 mph.
- Mounting: 1-1/4" - 1-1/2" mast
- Max Power: 100 watts
- Gain: 6dBd VHF & UHF
- Bandwidth: 1.5:1 SWR
  2 MHz.- 2 Meters
  10 MHz.- 440 MHz.
- Feed: Shunt, DC ground
- Connector: N female

Model G6-440 Omnidirectional Fixed Station

Each is pre-tuned at the factory for easy installation. Enclosed in a lightweight tapered fiberglass radome for low wind resistance. Compact size allows shipment via U.P.S. or Parcel Post.

ELECTRICAL

- Maximum power input: 250 watts
- Gain: 6 dB
- Bandwidth: 8 MHz. under 1.5:1 SWR
- Impedance: 50 ohm nominal
- Lightning protection: direct ground
- Termination: Type N female

MECHANICAL

- Length: 87"
- Weight: 5 lbs.
- Wind survival: 125 mph.
- Mounting: up to 2" mast

G6-144B Two Meter Antenna Omnidirectional Fixed Station

6dB GAIN - compared to 1/2 wave dipole.

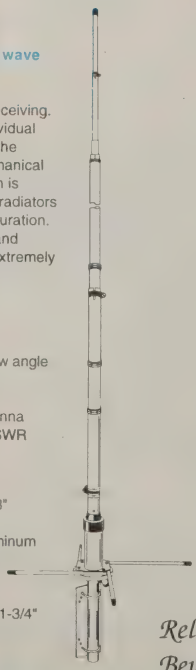
Get the tremendous advantage of 6 dB gain transmitting, 6 dB gain receiving. Whether your application is for individual fixed station or repeater operation the Hustler G6-144B has superior mechanical and electrical design. Optimum gain is achieved with two 5/8 wave-length radiators correctly phased in collinear configuration. Stated gain figure is conservative and maximum signal radiation is at an extremely low angle.

ELECTRICAL

- 6 dB gain over 1/2-wave dipole
- Omnidirectional radiation pattern
- Maximum radiation - extremely low angle
- 50 ohm feed impedance
- Field adjustable: 140-150 MHz.
- SWR at resonance: 1.2:1 at antenna
- Bandwidth : 4 MHz. under 2:1 VSWR
- Shunt-fed with D.C. grounding

MECHANICAL

- Vertical element: 117" long, 1-1/8" telescopic to 3/8"
- Constructed of high strength aluminum
- Connector: SO-239
- Wind load: 26 lbs. @ 100 mph.
- Completely self-supporting
- Mounting: Vertical support up to 1-3/4"
- Shipping wt: 6.8 lbs.



G7-144 Two Meter Antenna Omnidirectional Fixed Station

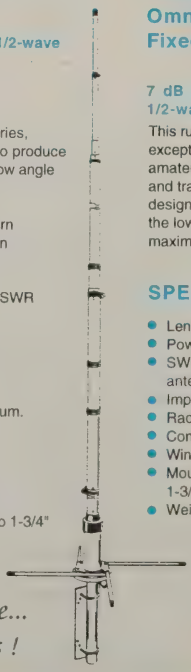
7 dB GAIN - compared to 1/2-wave dipole.

ELECTRICAL

- Radiator: Collinear shunt-fed. Triple 5/8-wave elements in series, seperated by 2 phasing coils to produce maximum gain and extremely low angle of radiation.
- 7 dB gain over 1/2-wave dipole
- Omnidirectional radiation pattern
- Extremely low angle of radiation
- Tuning range: 144-148 MHz.
- VSWR: 1.2:1 at resonance
- Bandwidth: 4 MHz. under 2:1 VSWR
- Power: 600 watts
- 50 ohm feed inpedance
- Shunt fed with DC grounding

MECHANICAL

- High strength fiberglass and alum.
- Completely self-supporting
- Length: 184"
- Radials: (4) 20-1/4" x 3/8" O.D.
- Connector: N-type
- Wind load: 26 lbs. @ 100mph.
- Mounting: Vertical support up to 1-3/4"
- Weight: 10 lbs.



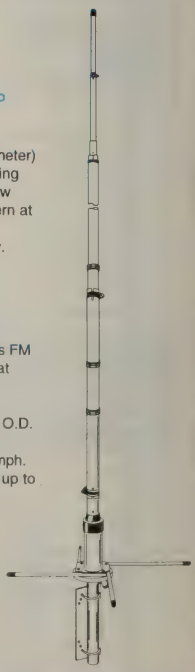
G7-220 Omnidirectional Fixed Station

7 dB GAIN - compared to 1/2-wave dipole.

This rugged antenna means exceptional 220 MHz (1-1/4 meter) amateur performance, receiving and transmitting. A unique new design keeps the signal pattern at the lowest possible angle of maximum radiation efficiency.

SPECIFICATIONS

- Length: 122" long
- Power capability: 600 watts FM
- SWR at resonance: 1.2:1 at antenna
- Impedance: 50 ohms
- Radials: (4) 14-3/4 x 3/16" O.D.
- Connector: Type N
- Wind load: 26 lbs. @ 100 mph.
- Mounting: vertical support up to 1-3/4" O.D.
- Weight: 7 lbs.



Reliability & Performance...
Beyond your Expectations !

VHF and UHF Mobile Antennas

FX Series

- 3.4 dB gain; 5/8 λ, 200 watt rating
- 15 feet of coax with PL-259 connector
- Magnetic mount holds to 100 mph.

Model FX-2
2 meter, black and chrome
Model FX-220
220 MHz., black and chrome
Model FX-2B
2 meter, all black
Model FX-220B
220 MHz. all black

RX Series

- 3.4 dB Gain; 5/8 λ, 100 watt rating
- 15 foot of coax with PL-259 connector
- Magnetic mount holds to 75 mph.

Model RX-2
2 meter, black and chrome
Model RX-220
220 MHz. black and chrome

Model BBLT-144A

3.4 dB Gain Trunk-Lip Mount Antenna

- Adjustable 143-149 MHz.
- SWR: 1.1:1 at resonance
- Power rating: 200 watts FM
- Shunt-fed • Reduced static
- Length: 4'4" inc. mt. • Spring and 180° swivel ball for vertical positioning • 17' coax with connector • No drilling required

Model BBL-144A

3.4 dB Gain Roof Mount Antenna
Same as **BBLT-144A** but mounts in 3/4" hole on a flat surface. 17' coax with connectors.

Model SF-220

Low Cost 3.4 dB Gain 220 MHz 5/8 λ for 3/8" x 24 thread mounts

- 1.2:1 SWR at resonance • Power rating: 100 watts FM • Tapered stainless steel radiator • Length: 2'7"

Model SF-2

Low Cost 3.4 dB Gain
2 meter 5/8 λ for 3/8" x 24 thread mounts

- 1.2:1 SWR at resonance
- Power rating: 100 watts FM
- Tapered stainless radiator
- Length: 4'

Model RX-440

UHF Magnetic Mount

- 5/8 λ over 1/4 λ design
- 5 dB gain
- Speed rated to 75 mph.
- Includes 12' coax

Collinear

Model CGT-220

5.2 dB Gain 5/8 λ Over 1/4 λ Collinear Trunk-Lip Mount Antenna

- 1.1:1 SWR (typical) at resonance • 4 MHz. bandwidth under 1.5:1 SWR • Power rating: 200 watts FM • Heigth: 4' 9" including mount
- Spin knob to remove antenna
- 17' of low loss coax with connector

Model CG-220

Has identical electrical characteristics as **CGT-220** but with 3/8 x 24 threaded base for use with standard ball mounts or other 3/8" x 24 Hustler mounts.

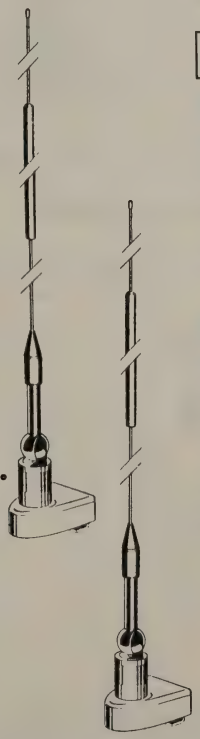
Model CGT-144

5.2 dB Gain, 5/8 λ Over 1/4 λ Collinear Trunk-Lip Mount Antenna

- 6 MHz bandwidth • 1.5:1 SWR • Power rating: 200 watts FM • Length: 7' 1" including mount • 180° swivel ball for vertical positioning • 17' coax with connector • No drilling required

Model CG-144

Same as CGT-144 but has 3/8" x 24 threaded base for use with standard ball mounts or other 3/8" x 24 Hustler mounts.

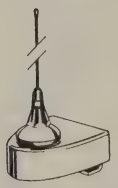


Reliability & Performance... Beyond your Expectations !

Unity Gain

Model THF

VHF/UHF Trunk-Lip Mount Antenna
Tunable 17-7 PH stainless steel radiator is cut to 1/4 wavelength for low SWR and unity gain from 140 to 500 MHz. Trim chart included. Easy to install trunk-lip mount attaches to rear or side of trunk lid without drilling. Supplied ready for operation with 17' of coax with connectors installed.



Model UGM

VHF/UHF Magnetic Mount Antenna
Extend range of handheld or portable radios. Trimmable 17-7 PH stainless steel radiator is cut to 1/4 wavelength for low SWR and unity gain from 140 to 500 MHz. Trim chart included. Highly efficient mylar-protected magnetic mount attaches conveniently to magnetic compatible surfaces. No drilling! Supplied ready for operation with 7' of mini-coax with BNC connector.

Model UHT-1

VHF/UHF Roof/Deck Mount Antenna
Low profile mount designed for easy installation in a 3/4" hole on any flat surface or on roof without pulling headliner. Unity gain, 1/4-wave performance. Tunable 17-7 PH stainless steel radiator permits operation on any frequency from 140 to 500 MHz. Trim chart, 15' of coax and connector are included.

Model MKR-2 Radial Kit

Contains three decoupling radials and mount to convert series-fed mobile VHF antennas to fixed operation. Performance is comparable to many regular base antennas. Suitable for permanent installations or portable use. Heavy-duty zinc plated mast bracket and hardware. Accepts antennas with standard 3/8 x 24 threaded base.

Fixed Station Multi-Band HF Vertical Antennas

- Broadbanded - low VSWR at band edges
- Power capability - full legal limit on SSB or CW
- Solid one-inch fiberglass trap forms for optimum electrical and mechanical stability
- Heavy wall, high strength aluminum tubing, heavy duty aluminum mounting bracket and low loss,high strength insulators
- Stainless steel clamps and hardware
- Easy assembly and tuning
- Single line feed with any length of 50 ohm coax
- Use as ground mount with or without radials, or elevated mount with radials

Model 6-BTV

Bands — 10-15-20-30-40 & 75 or 80 meters
Length/weight — 24'/16.5 lbs.
Mounting — Vertical support up to 1-3/4" O.D.
Wind load — 29 lbs. @ 70 mph.
Power capability — Full legal limit SSB/CW
VSWR at resonance — 1.15 to 1 or better
Bandwidth — VSWR 2:1 or better at band edges on 10-40 meters (100 KHz. on 75 or 80 meters)

Model 5-BTV

Bands — 10-15-20-40 & 75 or 80 meters
Length/weight — 25'1" /17 lbs.
Mounting — Vertical support up to 1-3/4 O.D.
Wind load — 29 ibs. @ 70 mph.
Power capability — Full legal limit SSB/CW
VSWR at resonance — 1.15 to 1 or better
Bandwidth — VSWR 2:1 or better at band edges on 10-40 meters (100 KHz. on 75 or 80 Meters)

Model 4-BTV

Bands — 10-15-20-40 meters
Length/weight — 21'5"/15 lbs.
Mounting — Vertical support up to 1-3/4" O.D.
Power capability — Full legal limit SSB/CW
VSWR at resonance — 1.15 to 1 or better
Bandwidth — VSWR 1.6:1 at band edges

30 Meter Add-on Kit for 4-BTV and 5-BTV

Model 30-MTK
Full 30 meter band coverage
Will not affect normal operation
Easy installation
All hardware included
Weight: 5 lbs.

Hustler Resonators

Standard Resonators

Power rating - 400 watts SSB

Part	Description	Approx. Bandwidth 2:1 SWR or Better
RM-10	10 METER	150-250 KHz.
RM-11	11 METER	150-250 KHz.
RM-12	12 METER	90-120 KHz.
RM-15	15 METER	100-150 KHz.
RM-17	17 METER	150 KHz.
RM-20	20 METER	80-100 KHz.
RM-30	30 METER	50-60 KHz.
RM-40	40 METER	40-50 KHz.
RM-75	75 METER	25-30 KHz.
RM -80	80 METER	25-30 KHz.

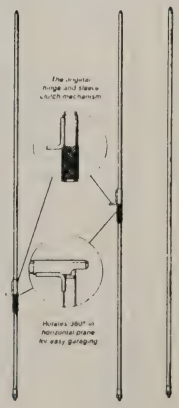
Super Resonators

Power rating - full legal limit. Super Resonators also offer wider bandwidth, especially on 40, 75 and 80 meters.

Part	Description	Approx. Bandwidth 2:1 SWR or Better
RM-10-S	10 METER	250-400 KHz.
RM-11-S	11 METER	250-400 KHz.
RM-15-S	15 METER	150-200 KHz.
RM-20-S	20 METER	100-150 KHz.
RM-40-S	40 METER	50-80 KHz.
RM-75-S	75 METER	50-60 KHz.
RM- 80-S	80 METER	50-60 KHz.

Mobile HF Antennas

Hustler Masts



MO-1 Mobile mast, 54" high, for deck or fender mounting-folds over 15" above base.

MO-2 Mobile mast, 54" high, for bumper mounting - folds over 27" above base.

MO-3 Mobile mast, 54" high, solid - does not fold over.

MO HF Mobile Mast
- For use with Hustler HF resonators
- Only 22" long
- Suitable for trunk or deck mounting
- Includes 3 new tip rods

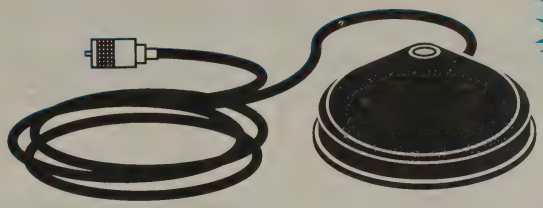
MO-4

Reliability & Performance... Beyond Your Expectations!

Mobile Antenna Hardware

MBM "Super" Magnet

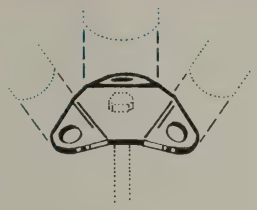
- 95 lb. pull strength
- Powerful 5 inch dia. magnet
- 16 feet RG 58 coax with PL-259 connector
- 3/8" x 24 female threads
- Recommended for antennas up to 48" in length



NEW

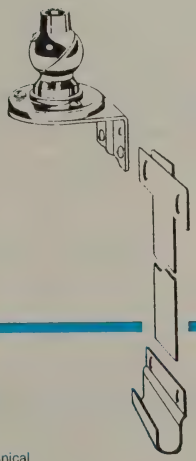
Multi-band Adapter
VP-1

Automatic bandswitching using any three Hustler H.F. mobile resonators. Adapts with any Hustler H.F. mast (MO-1, MO-2, MO-3, MO-4) for tri-band operation easily and quickly.



Bumper Mount
BM-1

Design is rugged for supporting Hustler antenna with Standard or Super resonators. Heavy stainless steel strap, stronger than chain, fits most bumpers inconspicuously. Assembly is easily installed and held rigid by "J" bolts at the top and bumper strap clamp at bottom.
Mount includes 180° adjustable swivel ball for vertical positioning of antenna. Hardware is zinc plated for superior resistance against corrosion.



Resonator Spring
RSS-2

Finest quality stainless steel spring for use between resonator and Hustler antenna mast. This 3/4" x 3 x 1/2" spring absorbs shock when antenna strikes overhanging obstructions. Supplied ready for easy installation with 3/8" x 24 threads, female on one end, male on the other.

Quick Disconnect
QD-2 100% Stainless Steel

Remove antenna from mount in seconds with push and twist release. Every part including the compression spring is manufactured from the best available 100% stainless steel. Special design of enclosed compression and lock assembly asssures freedom against ice and dirt jam up. Accommodates small, medium and large size mobile antennas. Equipped with 3/8" x 24 threads, female one end and male on the other.

Stainless Steel Mounts

- Exceptional performance and quality
- 180° adjustable reinforced stainless ball
- Professional quality Cycolac bases for greatest mechanical stability
- Exclusive "C" backup plate allows external installation
- Supplied with all mounting hardware and cork pad
- Applicable with all Hustler and other 3/8" x 24 thread antennas

SSM-1 Professional Ball Mount and Spring
SSM-2 Ball Mount
SSM-3 Stainless Steel Spring with Coupling Stud

Reliability & Performance... Beyond your Expectations !

Professional Series Heavy Chrome

Model C-32

Hustler professional ball mount. Furnished complete with rubber pad, steel backup plate, all mounting hardware, and hex wrench.

Model C-29

Stainless steel, corrosion resistant and electropolished spring complete with 3/8" x 24 coupling stud.

Model C-30

Chrome-plated steel spring complete with 3/8" x 24 coupling stud.

Maldol

THE INNOVATIVE ANTENNA COMPANY

PERFORMANCE PLUS!

THE ARD & EX SERIES OF DUAL BAND MOBILE ANTENNAS

Meet the hottest new line of dual band mobile antennas on the road today. Maldol's ARD & EX series. They are world famous for style and performance and extend the range of any mobile rig, new or old. ARDs and EXs are pretuned, broadbanded, weatherproof and available in black or chrome finish and truly make the going first class!

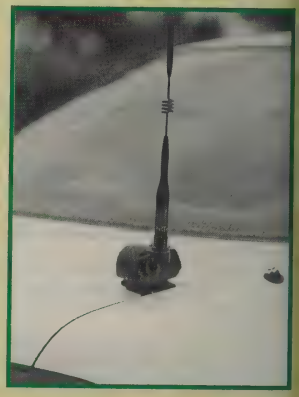
MODEL	LENGTH	GAIN (DBD)	POWER	
DUAL BAND (144/430MHz)				
ARD5B	19.3"	— / 3.8	120W	BLACK ONLY
ARD6/6B	26.5"	2.6 / 4.9	120W	
ARD 10/10B	34.4"	3.0 / 5.5	120W	
ARD 12/12B	48.2"	4.3 / 6.8	150w	
ARD 16/16B	64.8"	5.0 / 7.7	150w	
EX110/110B	37.3"	3.0 / 5.5	50W	
EX111/111B	43.8"	3.5 / 6.0	50W	
FA50	19.0"	2.1 / 3.2	50W	MINI MAG MOUNT - 10' CABLE
MONOBAND				
ARS50 (50MHz)	60.4"	1/4 WAVE	100W	6 METERS - CHROME ONLY
ARS 144/144B (144MHz)	55.3"	4.1150	150W	2 METERS
ARS 430/430B (430MHz)	37.9"	5.5150	150W	70 CM

See MALDOL in the Price List

THE WORLD CLASS IN HT ANTENNAS

Acknowledged as the world standard for quality and performance, The Maldol line of HT Antennas continues to outperform the competition in all categories from its "soft" rubber duck dual band to the gain antennas that improve any HT.

AH209S (144/430MHz)	SOFT DUCK	DUAL BAND
HS702S (144/430MHz)	17.6"	- / 3.2 dB Gain
FR30/30H (144/430MHz)	6 -0 15" TELESCOPE	- / 2.1 DB Gain

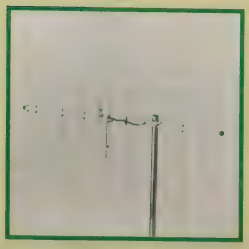


NOTHING ELSE LIKE IT!

MK-30 MOTORIZED TILT-OVER MOBILE MOUNT

The mobileer's dream! Ideal mate for ARDs and EXs but also works great for other antennas up to 65" long. Neat motorized unit quick-installs on trunk lid, roof gutter or roof rack. Remote up/down switch fits under dash. Permits one touch tilting for low overhangs and garages. T/ Trunk, H/ Hatchback, R/ Roof Gutter or K/ Roof Rack.

MK30 POWER MOUNT - Handles antennas up to 65" long and 1lb
RG4M - Matching Cable & Connector set for all mobile antennas



FOX 727 DUAL BAND PORTABLE/BASE YAGI

Recognized as the standard in lightweight, high quality VHF/UHF Beams, Maldol is pleased to offer the only portable dual band yagi covering VHF & UHF. The construction is all stainless hardware with lightweight aluminum boom. The unit comes in its own carrying pouch for easy transport. Covers both 144 and 430MHz bands and handlew 100 watts, this unit will handle all your needs at home or in the field.

HSFOX727 (144/430MHZ) Dual Band Portable Yagi – Gain: 9.5/11.5 dBi

Put The World At Your Fingertips!

NEW HY-GAIN DX77 ADVANCED VERTICAL WINDOM ANTENNA

...No Ground Radials!

HANDLES 1500 WATTS PEP... 10 THRU 40 METERS INCLUDING THE WARC BANDS

NEW!

The most advanced vertical antenna—the Hy-Gain DX77 is unsurpassed in mechanical design, high power capabilities and provides 55% greater bandwidth on 20 and 40 meters than competitive verticals.

Never before has such a high performance antenna provided no-compromise capabilities without the need for ground radials. The DX77 is the only vertical without radials that can handle 750 watts keydown of RF output for 30 minutes.

Easy tilt mount is convenient to lower for tuning. Recommended installation is 8 feet above ground. Mount on pole, chimney, rooftop or deck—or great for portable and RV operation!

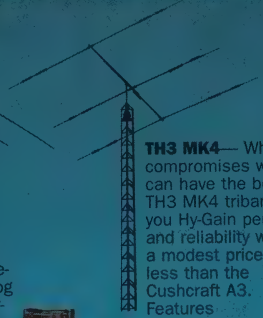
Exceptional value with advanced features:

- Automatic band switching
- Low angle of radiation
- Double wall tubing, steel masts clamp and stainless steel hardware
- 29 ft. compact, low profile design
- 2-year warranty

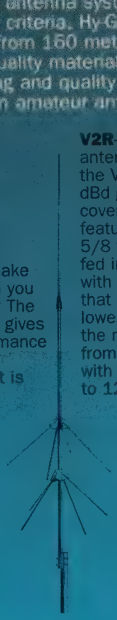
HY-GAIN BY TELEX YOUR PERFORMANCE ADVANTAGE

What's important to you when you're planning your new antenna system? Is it durability? Performance? Best antenna for the money? Whatever your criteria, Hy-Gain antenna products have always delivered performance, reliability and value—from 160 meters to satellite communications. Start with our quality designs and high quality materials, add our professional antenna range testing, MIL spec manufacturing and quality assurance, and you can understand why Hy-Gain is the most respected name in amateur antenna products.

TH11DX—This unique design gives you the frequency coverage of a log periodic with the performance of a monobander. Covers 20, 17, 15, 12 and 10 meters with maximum performance and only one feedline.

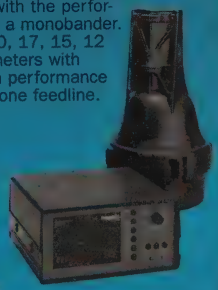


TH3 MK4— Why make compromises when you can have the best? The TH3 MK4 tribander gives you Hy-Gain performance and reliability with a modest price that is less than the Cushcraft A3. Features impressive 5.9 dBd gain and all stainless steel hardware.



V2R—A rugged antenna for 2 meters, the V2R provides 3 dBd gain with a wide coverage pattern. It features two collinear 5/8 wave antennas fed in phase along with 2 sets of radials that decouple the lower radiator from the mast. Tunable from 138-175 mHz with wind survivability to 120 MPH.

V42R—Expand your capabilities with this dual-band performer. This omnidirectional antenna gives you 3 dBd gain on 2 meters as well as 5 dBd gain on 70 cm. Comes complete with type N connector.



Hy-Gain Ham V with New Digital Control System

hy-gain® by Telex

Telex Communications®, Inc.
8601 East Cornhusker Highwa
Lincoln, NE 68505 USA
Phone: 402-467-5321
FAX: 402-467-3279

OUTbacker

The Complete HF Mobile Antenna System

Whether in the city... in the country... or backpack portable.

• ONE ANTENNA DOES IT ALL • BUILT TO LAST • WIDE BAND-WIDTH • LOW SWR • SHEER MOBILING ENJOYMENT

It's plug-n-play, mate!

OUTBACKER

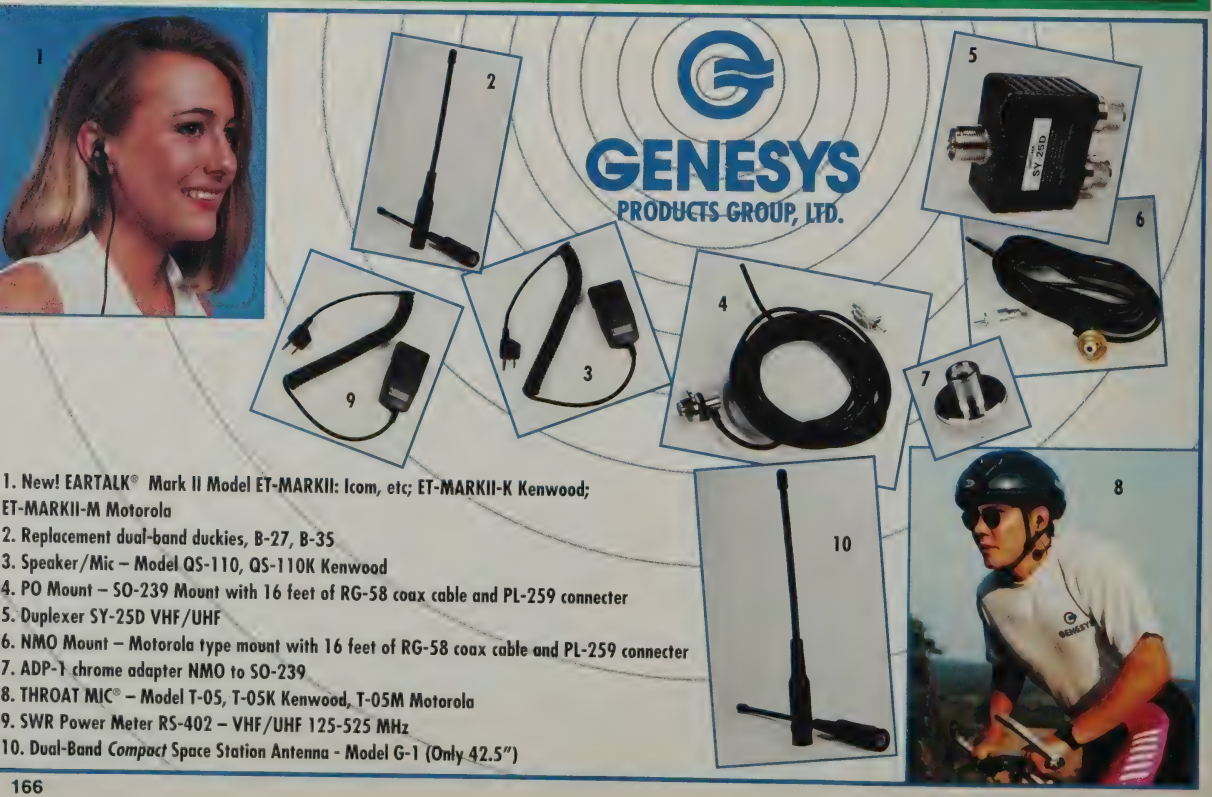
links your rig to the world.

- **Outbacker Classics** OB8: 6 ft. tall. 80-10m plus WARCs. 300 watts PEP. 3/8-24 thread. Ideal for all applications. OBS8: Same specs. Splits in two sections. Easy to store. OB8TRI: Same specs. Splits in three sections. Backpacker's delight. OB8HP: 500 watt PEP version. OBM: Ham/Marine combo. Popular Ham bands PLUS marine ITU bands.
- **Outbacker Perth** 7.5 ft. tall. 80-10m plus WARCs. 150 watts PEP. 3/8-24 thread. 3.5 ft. stinger retracts into 4 ft. mast for garaging or trunk storage. Superb performance. Perfect for trunk mounting. Low wind resistance.
- **Outbacker Perth Plus** 75-10m with 6m and 2m. Works well with the new ICOM IC-706 and ALINCO DJ-70 transceivers.
- **Outbacker Jr.** OBJR8: 4 ft. tall. 80-10m plus WARCs. 150 watts PEP. 3/8-24 thread. Terrific for hatchback or roof mounting and RV's.

OUTBACKER MODEL DESCRIPTIONS AND PRICING

Standard models with 8 bands — 75m-40m-30m-20m-17m-15m-12m-10m — All with standard 3/8-24 threads, all models black.

	Description	Model #	Price
OUTBACKER PERTH	*Popular* OUTBACKER • highest performer • 4 ft. shaft with 3 ft. stinger low wind resistance • 150 watt P.E.P.	Model Perth	$274.00
OUTBACKER PERTH Plus	*Newest* OUTBACKER • 75-10m with 6m and 2m	Model Perth Plus	$289.00
OUTBACKER 8	6 ft, 300 watts P.E.P.	Model #OB-8	$259.00
OUTBACKER HP	6 ft, 500 watts P.E.P.	Model #OB-8HP	$289.00
OUTBACKER SPLIT	6 ft, 300 watts P.E.P., breaks down into 2-3 ft. sections for easy storage storage pouch included	Model #OB-S8	$289.00
OUTBACKER TRI-SPLIT	same as OUTBACKER SPLIT except breaks down into 3-2 ft. sections, storage pouch included	Model #OB-8TRI	$319.00
OUTBACKER MARINER	includes ham bands 75m-40m 20m-17m-10m and Marine ITU bands; 2.182MHz - 4.1MHz - 6.2 MHz - 8.2 MHz -12.4MHz - 16.5 MHz - 22.1MHz	Model #OB-M	$399.00
OUTBACKER JR	4 ft, 150 watts P.E.P.	Model OB-JR8	$229.00
OUTBACKER Spring/Base	3/8-24 threads zinc-plated spring, nickel-plated steel base, machined brass and SO-239 RF termination,1/2" hole	Model OB-SB	$82.00



1. New! EARTALK® Mark II Model ET-MARKII: Icom, etc; ET-MARKII-K Kenwood; ET-MARKII-M Motorola
2. Replacement dual-band duckies, B-27, B-35
3. Speaker/Mic – Model QS-110, QS-110K Kenwood
4. PO Mount – SO-239 Mount with 16 feet of RG-58 coax cable and PL-259 connecter
5. Duplexer SY-25D VHF/UHF
6. NMO Mount – Motorola type mount with 16 feet of RG-58 coax cable and PL-259 connecter
7. ADP-1 chrome adapter NMO to SO-239
8. THROAT MIC® – Model T-05, T-05K Kenwood, T-05M Motorola
9. SWR Power Meter RS-402 – VHF/UHF 125-525 MHz
10. Dual-Band *Compact* Space Station Antenna - Model G-1 (Only 42.5")

KLM TRIBANDERS

The KT-34A and KT-34XA have become pace-setters for tribander performance. The four element KT-34A offers an unusually compact solution for a three-band high performance installation. The six element KT-34XA has been designed to outperform all commercially available tribanders and many monobanders as well. The high performance of these tribanders results from their innovative construction. Traps, coils, and capacitors found on conventional tribanders are replaced by lossless linear loading and high-Q air capacitors constructed of aluminum tubing. These techniques coupled with *KLM's* unique dual-driven element system allow broadband performance with high gain and low VSWR remaining nearly constant across the three bands. The KT-34A can be upgraded to the KT-34XA at any time.

The boom length of the KT-34XA is doubled, when one tri-resonant and one full size 10 meter element is added. These changes increase the gain to 11-11.3 dBd on 10M, 9-9.5 dBd on 15M, and 8.5-9 dBd on 20M.

Structurally, the KT-34A is built tough. All the aluminum, including the boom, is strong weather resistant 6063-T832 alloy. All the hardware is stainless steel except for the mounting U-bolts. Virtually indestructible Lexan insulators support the elements and insulate them from the boom. Rotation is possible by most any ham rotor. Wind balance and wind survival are excellent.

KT-34A

SPECIFICATIONS

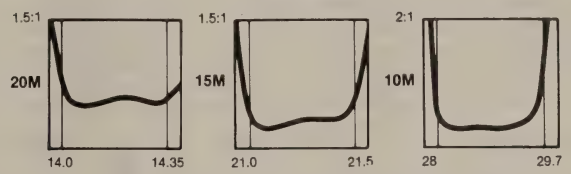
ELECTRICAL

BANDWIDTH	14.0-14.350 MHz
	21.0-21.450 MHz
	28-29.7 MHz
GAIN	7 dBd ± 0.3 dB
VSWR	1.5:1
F/B-F/S	20 dB/30 dB
FEED IMP	50 Ohms w/Balun
BALUN	4:1, 5 kW PEP

MECHANICAL

ELEMENT LENGTH	24 ft.
BOOM LENGTH	16 ft.
TURN RADIUS	16 ft.
WINDLOAD	6 sq. ft.
WEIGHT	45 lbs.
MAST	2 in. O.D.

KT34A vs. SWR



KT-34XA

SPECIFICATIONS

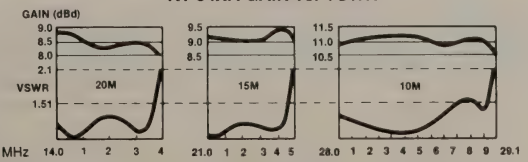
ELECTRICAL

BANDWIDTH	14.0-14.350 MHz
	21.0-21.450 MHz
	28-29.1 MHz
GAIN	8.5-9 dB
	9-9.5 dB
	11-11.3 dB
VSWR	1.5:1
F/B-F/S	20 dB/40 dB
FEED IMP	50 Ohms w/Balun
BALUN	4:1, 5 kW PEP

MECHANICAL

ELEMENT LENGTH	24 ft.
BOOM LENGTH	32 ft.
TURN RADIUS	21.5 ft.
WINDLOAD	9 sq. ft.
WEIGHT	68 lbs.
MAST	2 in. O.D.

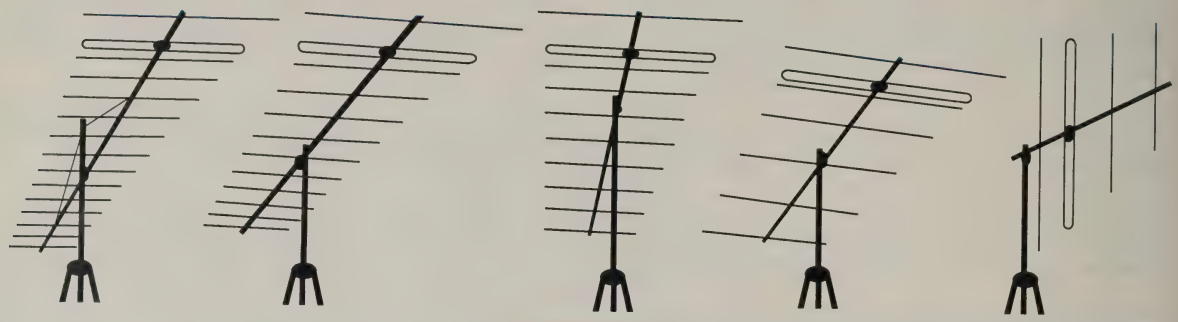
KT-34XA GAIN vs. VSWR



KLM VHF-UHF ANTENNAS

2 METER YAGIS

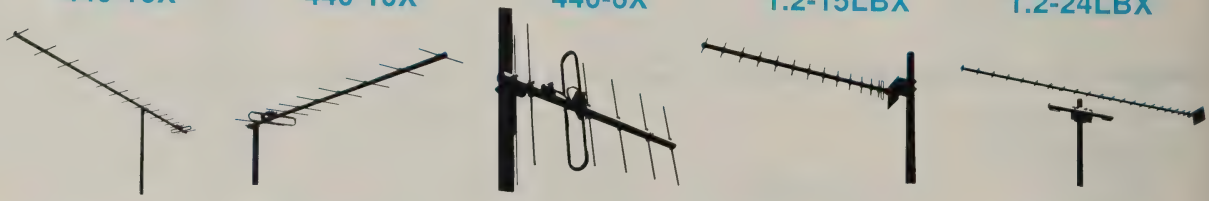
2M-15X 2M-12X 2M-10X 2M-7X 2M-4X



2 METERS

	2M-20 LBX	2M-15X *new for '96*	2M-12X *new for '96*	2M-10 X *new for '96*	2M-7X *new for '96*	2M-4 X
ELECTRICAL:						
BANDWIDTH	SPEC. 144-146 USABLE 143-148	144-148 MHz	144-148 MHz	144-148 MHz	144-148 MHz	144-148 MHz
GAIN	144-15.5 dBd 145-15.5 dBd 146-15.4 dBd 147-15.3 dBd 148-13.7 dB	14.8 dBd	13.4 dBd	12.5 dBd	10.3 dBd	8.5 dBd
VSWR.....Less than	1.5:1	1.5:1	1.5:1	1.5:1	1.5:1	1.5:1
F/B.....Greater than	30 dB	30 dB	25 dB	25 dB	25 dB	20 dB
BEAMWIDTH	E=26°, H=28°	E=26°, H=29°	E=28°, H=33°	E=32°, H=36°	E=46°, H=50°	62°
FEED IMP	50 Ohms	50 Ohms	50 Ohms	50 Ohms	50 Ohms	50 Ohms
BALUN	4:1, 2 kW Coax	4:1, 2 kW Coax	4:1, 2 kW Coax	4:1, 2 kW Coax	4:1 2 kW Coax	4:1, 2 kW Coax
MECHANICAL:						
ELEMENT LENGTH	40 5/8 in.	40 5/8 in.	40 5/8 in.	40 5/8 in.	40 5/8 in.	40 5/8 in.
BOOM LENGTH	38.5 ft.	28 ft.	21 ft.	15 ft.	8 ft. 9 in.	4.2 ft.
TURN RADIUS	21 ft. 10 in.	15 ft. 5 in.	13 ft.	8 ft. 9 in.	5 ft.	4 ft.
WINDLOAD	2.19 sq. ft.	1.75 sq. ft.	1.6 sq. ft.	1.38 sq. ft.	.65 sq. ft.	.25 sq. ft.
WEIGHT	17 lbs.	11 lbs.	9 lbs.	6 lbs.	4 lbs.	2 lbs.
MAST	2 in.	1 1/2 in. or 2 in.	1 1/2 in. or 2 in.	1 1/2 in. or 2 in.	1 1/2 in. or 2 in.	1 1/2 in. max.

440-16X 440-10X 440-6X 1.2-15LBX 1.2-24LBX



440 MHz — 432 MHz — 1296 MHz

	440-16X	440-10X	440-6X	432-30 LBX	432-20 LBX	1.2-44 LBX	1.2-24 LBX	1.2-15 LBX
ELECTRICAL:								
BANDWIDTH	420-450 MHz	420-470 MHz	420-470 MHz	430-440 MHz	425-440 MHz	1260-1300 MHz	1260-1300 MHz	1260-1300 MHz
GAIN	14.0 dBd	11.5 dBd	8.9 dBd	17.3 dBd	15.3 dBd	18.2 dBd	16.2 dBd	13.6 dBd
VSWR.....Less than	1.5:1	1.5:1	1.5:1	1.5:1	1.5:1	1.5:1	1.5:1	1.5:1
F/B.....Greater than	20 dB	20 dB	20 dB	20 dB	20 dB	39 dB	39 dB	39 dB
FEED IMPEDANCE	50 Ohms	50 Ohms	50 Ohms	50 Ohms	50 Ohms	50 Ohms	50 Ohms	50 Ohms
BALUN	Coax *N* 4:1, 2 kW	Coax *N* 4:1, 2 kW	Coax *N* 4:1 2 kW	1:1 Sleeve, 2 kW	1:1 Sleeve, 2 kW	4:1 Rigid Coax	4:1 Rigid Coax	4:1 Rigid Coax
BEAMWIDTH	E=28°, H=32°	48°	60°			E=16°, H=18°	E=22°, H=24°	E=28°, H=30°
MECHANICAL:								
ELEMENT LENGTH	14 in. max.	14 in. max.	14 in. max.	14 in. max.	14 in. max.	4.5 in.	4.5 in.	4.5 in.
BOOM LENGTH	10 ft. 3 in.	4.75 ft.	28 in.	21 ft. 11 in.	12 ft. 4 in.	12 ft. 4 in.	75 3/4 in.	42 in.
TURN RADIUS	6 ft.	4.90 ft.	2 ft. 5 in.	(9.6 wavelength) 12 ft. 4 in.	(5.42 wavelength) 7 ft.	84 in.	38 in.	43 in.
WINDLOAD	0.74 sq. ft.	0.53 sq. ft.	0.2 sq. ft.	1.72 sq. ft.	0.9 sq. ft.	1 sq. ft.	1/2 sq. ft.	1/4 sq. ft.
WEIGHT	7.5 lbs.	4 lbs.	1.2 lbs.	9 lbs.	5 lbs.	10 lbs.	7 lbs.	4 lbs.
MAST	1 1/2 in.	1 1/2 in.	1/12 in.	2 1/8 in. max.	1 1/2 in.	2 in. O.D.	up to 2 in. O.D.	up to 2 in O.D.
MOUNT	Center	Rear	Rear	Center	Center	Center	Center	Rear

KLM SATELLITE CIRCULARS - VHF/UHF

ELECTRICAL:	2M-14C	2M-22C	435-18C	435-40CX
BANDWIDTH	144-150 MHz	144-150 MHz	420-450 MHz	420-450 MHz
GAIN	11 dBc	13 dBc	12 dBc	15.2 dBc
VSWR Less than	1.5:1	1.5:1	1.5:1	1.5:1
F/B Greater than	20 dB	20 dB	20 dB	20 dB
FEED IMP	50 Ohms	50 Ohms	50 Ohms	50 Ohms
BEAMWIDTH	38°	34°	34°	25°
ELLIPTICITY	3 dB max	3 dB max	3 dB max	3 dB max
BALUN	(2) 4:1 coax, 2 kW*	(2) 4:1 Coax, 2 kW*	(2) 4:1 Coax, 2 kW*	(2) 4:1 Coax, 2 kW*

2M-22C

MECHANICAL:				
ELEMENT LENGTH	40.625 in. max	40.625 in. max	13.25 in. max	13.625 in. max
BOOM LENGTH	12 ft. 9 in.	19 ft. 1 in.	7 ft. 4 in.	14 ft. 7 in.
TURN RADIUS	7 ft.	11 ft.	7 ft.	8 ft., 9 in.
WINDLOAD	1.25 sq. ft.	1.85 sq. ft.	0.5 sq. ft.	1.16 sq. ft.
WEIGHT	7.5 lbs.	11 lbs.	4.5 lbs.	10 lbs.
MAST	2 in.	2 in.	1.5 in.	1.5 in.
MOUNT	Center	Center	Rear	Center
POLARITY	Circular R.H. and L.H. switchable using CS-3	Circular R.H. and L.H. switchable using CS-2		

*Derate to 250W when using Switchers (supplied)

435-40CX

HF LOG PERIODICS

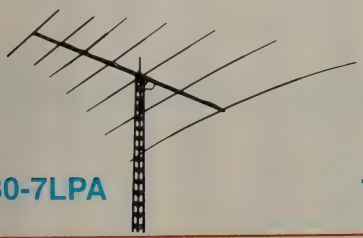
KLM's Log Periodic Antennas offer extended coverage of the amateur bands and intermediate frequencies. The **10-30-7LPA** for example, covers 20, 15, and 10 Meters plus the WARC bands and many MARS frequencies. The addition of the **40M-1** dipole module provides 40 Meter operation as well. This can easily be accomplished using the **SK-8** Conversion Kit. This system is also available complete as the **7.2/10-30-LPA.** All HF Log Periodic Antennas are available with a Heavy Duty Boom at additional cost. Also, 10kW Baluns are available for a nominal charge.

ELECTRICAL:	10-30-7LPA	7.2/10-30LPA	6-30-15LPA
BANDWIDTH	10-30 MHz	7.2/10-30 MHz	6-30 MHz
GAIN	7 dBd typ	3/7 dBd typ	5.5 to 8 dBd
VSWR	1.5:1 typ	1.5:1 typ	2:1 and less, typ
F/B	15 dB	10/15 dB	15 dB typ
FEED IMP	50 Ohms, unbal.	50 Ohms, unbal.	50 Ohms, unbal.
BALUN(S)	4:1, 5 kW	4:1, 5 kW	(3) 4:1, 4 kW PEP
MECHANICAL:			
ELEMENTS	7	8	1.5
ELEMENT LENGTH	43 ft.	46 ft.	48 ft.
BOOM LENGTH	30 ft.	42 ft.	46 ft. (6-12-8)
TURN RADIUS	26 ft.	32 ft.	30 ft. (10-30-7)
WINDLOAD	8.25 sq. ft.	12 sq. ft.	24 sq. ft.
WEIGHT	70 lbs.	100 lbs.	150 lbs. (6-12-80) / 70 lbs. (10-30-7)
MAST	2 in.	2 in.	2 in./3 in.

SK-8 Conversion Kit

This kit enables you to add 40 Meters to your *KLM* 10-30-7LPA antenna. The SK8 kit includes a boom extension, a beta match for the dipole and all the necessary hardware including a full set of instructions. Purchase a *KLM* 40M Dipole to finish the upgrade.

By upgrading your present 10-30-7LPA to include 40M you will enjoy increased Front-to-Back on 20M and will see Front-to-Back gain on 40M similar to a 2 element beam. You will also enjoy forward gain on 40 Meters through the interaction of the full log array. It's an easy way to upgrade your log.



10-30-7LPA

7.2/10-30LPA

6-30-15LPA

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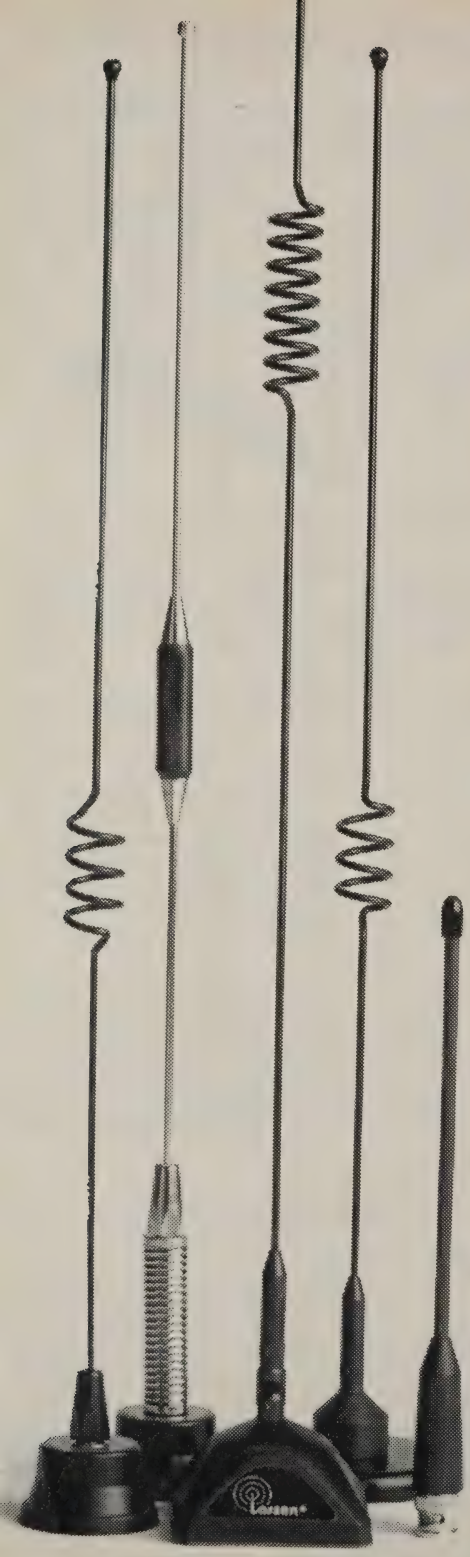


Quality Performance You Can Hear

Simultaneous VHF and UHF Communication Over Wide Bandwidths

Larsen's Dual Band Series

Larsen dual band antennas provide excellent performance for simultaneous use of VHF and UHF amateur frequencies. Each Larsen dual band antenna is factory preset to guarantee optimum performance with no tuning required.

	NMO 2/70 SH	MM 2/70	NMOQ 2/70 B
Freq.	144-148/440-450 MHz	144-148/440-450 MHz	144-148/440-450 MHz
Gain	Unity	Unity	Unity
Power	100 Watts	100 Watts	100 Watts
Type	VHF: Center Loaded 1/4 λ UHF: Center Loaded 3/4 λ	VHF: Center Loaded 1/4 λ UHF: Center Loaded 3/4 λ	VHF: Center Loaded 1/4 λ UHF: Center Loaded 3/4 λ
Base	NMO UHF BASE B w/spr	3" Round mag. mount	NMO UHF BASE B
Height	17"	17"	18"
Whip	W NMO 2/70 SH	W NMOQ 2/70 B	W NMOQ 2/70 B

λ = wave length

	KD4 2/70	NMO 2/70 C	NMO 2/70 B	KG 2/70 UD PL
Freq.	144-148/442-448 MHz	144-148/440-450 MHz	144-148/440-450 MHz	144-148/442-448 MHz
Gain	Unity	2.4/4 dBd	2.4/4 dBd	2.4/4.5 dBd*
Power	25 Watts	100 Watts	100 Watts	50 Watts
Type	VHF: Loaded 1/4 λ UHF: 1/4 λ	VHF: 5/8 Wave UHF: Collinear	VHF: 5/8 Wave UHF: Collinear	VHF: 1/2 λ UHF: Collinear
Base	BNC	NMO 2/70 BCO	NMO 2/70 BCO	KG 2/70 O/S
Height	8"	36.75"	33.5"	32.5"
Whip	N/A	W 2/70	W 2/70 B	W KG 2/70

λ = wave length *Ground plane required for gain.

Larsen®

Low Impedance Design Creates A Premium On-Glass Antenna

Larsen's Kūlglass™ Series

Larsen's Kūlglass (KG) series uses a patented low impedance design and advanced materials to produce the world's best on-glass antenna. Our KG series uses advanced resin polymer plastic to completely enclose the circuit board or loading coil for mechanical durability and weather resistance. 3M's best adhesive tape, plus Larsen's unique bonding enhancer, ensure the best possible grip to the glass.

	KG 144 UD PL	KG 220 UD PL	KG 440 UD PL
Freq.	144-160 MHz	220-225 MHz	440-469 MHz
Gain	2.4 dBd	2.4 dBd	2.4 dBd
Power	100 Watts	100 Watts	100 Watts
Connector	PL 259 (Loose)	PL 259 (Loose)	PL 259 (Loose)
Type	1/2 λ	1/2 λ	1/2 λ
Base	KG 144 O/S	KG 220 O/S	KG 440 O/S
Height	48"	26.5"	15"
Whip	W KG 144	W KG 220	W KG 440

λ = wave length

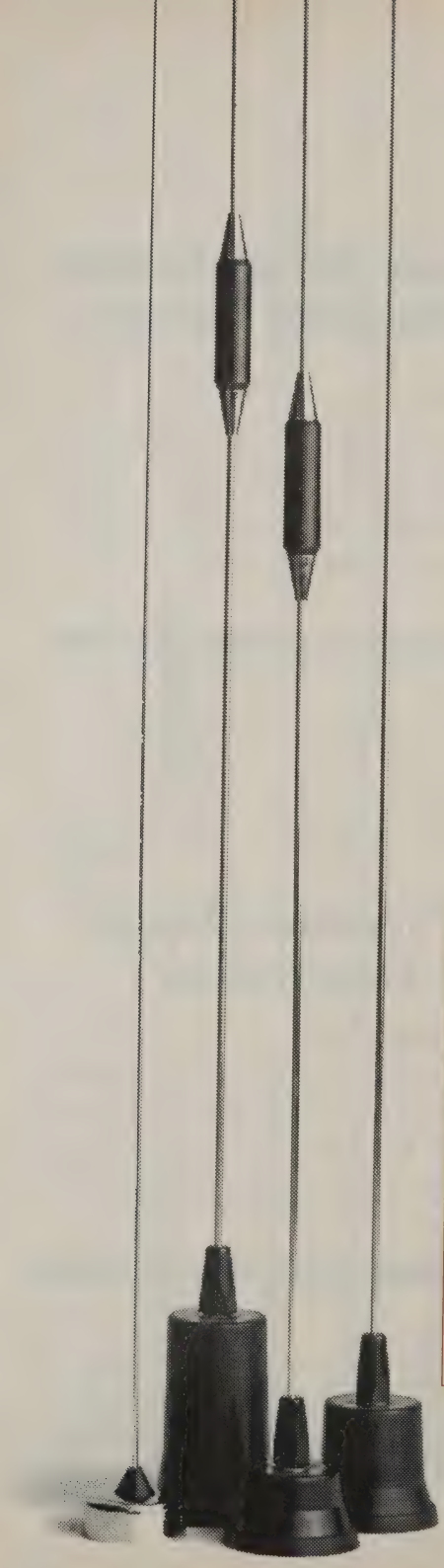
Outstanding Transmit Range and Durable Construction

Larsen's Kūlduckie™ Portable Series

Superior transmit range and tough mechanical durability are the hallmark of Larsen portables. All of our center cores are made of brass or copper plated steel to maximize RF emission. Fully soldered connections and silver plated components improve electrical efficiency. Our double spring BNCs also reduce wear on your radio mount. Other mounting styles available.

	KD4 146	KD4 146 HQ (2m)	KD14 2M HW
Freq.	144-148 MHz	144-148 MHz	144-148 MHz
Gain	Unity	Unity	Unity
Power	25 Watts	25 Watts	25 Watts
Type	1/4 λ, Helical	1/4 λ, Helical	1/2 λ, Telescoping
Base	BNC	BNC	BNC
Height	8"	10.5"	8.5" to 42"
Whip	N/A	N/A	W KD14 2M HW

λ = wave length



Proven Superior Performance and Rugged Dependability

NMO Mobile Antennas

Larsen's own version of the standard 3/4" Motorola TAD/TAE type mount uses advanced design, materials, and construction to provide a premium mount. For demanding outdoor applications, the chemical resistant NMO series is housed in a resin polymer plastic shell which is completely molded around the nickel plated brass whip stud to eliminate moisture damage. Our superseal gasket also greatly reduces water intrusion under the base.

	NMO 27 C	NMO 150 C	NMOQ SPEC	NMO 220 C	NMO 440 C
Freq.	27-31 MHz	144-174 MHz	136-512 MHz	220-225 MHz	440-460 MHz
Gain	Unity	3 dBd	Unity	Unity	4.5 dBd
Power	200 Watts	200 Watts	200 Watts	200 Watts	200 Watts
Type	Loaded 1/4 λ	5/8 λ	1/4 λ	5/8 λ	5/8 over 1/2 λ
Base	NMO 27 BCO	NMO 150 BCO	N/A	NMO 220 BCO	NMO UHF BASE B
Height	53"	51.75"	21"	34.5"	33"
Whip	W 490	W 490	N/A	W 400	W 154

λ = wave length

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77BNC
12" Dual Band "Rubber Duck" covers 2 meter and UHF.

144BNC
12" 1/4 Wave "Rubber Duck" for 144-148 MHz.

220BNC
10" 1/4 Wave "Rubber Duck" for 220-225 MHz.

450BNC
6½" 1/4 Wave "Rubber Duck" for 430-470 MHz.

MO144-440
Dual Band Antenna covers both 2 meter and UHF.

MM270B
Dual Band MICRO-MAG™ Miniature Antenna to cover 2 meter and UHF.

PHF Series Monoband Antennas...
Consist of of a 4' fiberglass lower section with an adjustable steel whip on top. Available Models: PHF160, PHF75, PHF40, PHF30, PHF20, PHF17, PHF15, PHF12, PHF10, & PHF6.

PAM
3-3/4" Chrome Magnet Mount Kit. (Black: **PAMB**)

PAS
Surface Mount Kit for 3/4" hole.

PAT2
Trunk Lip Mount Kit. (Black: **PAT2B**)

PAT3
Swivel Trunk Mount Kit. Adjustable.

WMSLBNC
Window Mount with BNC.

SS100MOT
Stainless Steel 3-Way Mirror Mount with Motorola style mounting.

40M or 75M

15M

20M

10M

AB5
Complete 5 Band Antenna. Kit includes resonators for 10M, 15M, 20M, 40M, and 75M.

DB240
Dual Band Base Station Antenna to cover 2 meter and UHF.

MM3401
Maxi-Magnet Mount Kit includes 3, 5" magnets and 17' of cable with PL-259 connector.

VAA002
1/4 Wave Magnet Mount Kit for 2 meters; can be cut for 220 or 450 MHz. Includes 12' of cable with PL-259 connector. Also Available: **VAA002BN** Same as VAA002 except with BNC connector.

BNCSC
BNC Suction Cup Mount.

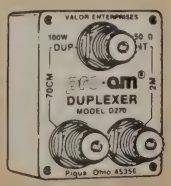
DAK
Dipole Mount.

GM270
Dual Band Through-The-Glass Antenna to cover both 2 meter and UHF.

PM144-440BN
Dual Band Magnet Mount Antenna Kit covers both 2 meter and UHF. Includes 12' of cable with BNC connector.

CX144B
VHF Mobile Communications Extender. 3dB Gain, 5/8 Wave. 144-148 MHz. Black.

D270
Duplexer for 2 Band Antennas.



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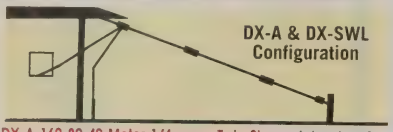
Solving your Antenna and Lightning Problems!

Limited Space High Performance Antennas

STAINLESS STEEL HARDWARE • FULLY ASSEMBLED • SEVERE WEATHER RATED COMPONENTS • NO-TRAP DESIGN

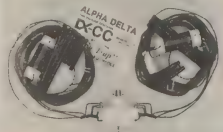
Unlike the usual trap antenna, there are no capacitors to break down under high RF voltages. *"ISO-RES"* inductors and 12 ga. insulated solid copper wire tolerate full-legal power. 50 ohm direct coax feed; a tuner usually not required when operating in the resonant bands but may be used for multi-band work if desired.



DX-A 160-80-40 Meter 1/4-wave Twin Sloper A top low frequency DX antenna. Combines the tremendous DX firepower of the 1/4-wave sloper with the wide bandwidth of the 1/2-wave dipole. One leg is 67 ft., the other 55 ft. Installs like an Inverted-V with ground return thru tower or down-lead **$59.95**

DX-B 1/4-wave DX sloper Single wire, high performance on 160, 80, 40, and 30 meters. Designed for limited space installations where room doesn't allow for the DX-A twin sloper. Requires only 60 ft. overall and provides amazing DX performance at installation heights of only 35 ft., and with the low end at only 8 ft. It's pre-assembled and pre-tuned. Just put it up and start enjoying low band operation. Utilizes stainless-steel hardware, 12 gauge solid copper wire and efficient Alpha Delta "Iso-Res" RF choke coils. To gain the same broadbanded performance like the DX-A, the DX-B is also designed to be used with a wide range antenna tuner, so no trimming or tweaking is necessary. 50 Ω coax feed, rated for full legal power.... **$69.95**

DX-SWL SWL Broadcast Sloper Covers 13, 16, 18, 19, 21, 25, 31, 41, 49, 60, 90, and 120 meter short-wave plus AM broadcast bands. Sloper design provides outstanding reception of low-angle DX signals. Multi-band 2KW transmit capability with an appropriate antenna tuner. Overall length is 60 ft.... **$79.95**



DX-CC "No-Trap" 80-40-20-15-10 meter Dipole or Inverted-V. Overall length is 82 ft... **$119.95**

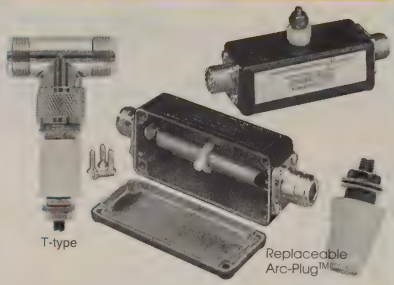
DX-DD "No-Trap" 80 and 40 meter Dipole or Inverted-V. Overall length is only 82 ft **$89.95**

DX-EE "No-Trap" 40-20-15-10 meter Dipole or Inverted V, also covers 30-17 & 12 meters with a tuner. 40 ft overall..... **$99.95**

DX-Series Monoband Dipoles Full-size dipoles utilizing the Delta-C Center Insulator with built-in SEP Arc-Plug® Static Electricity Protector. Fully assembled using the Delta -C, 12 ga. insulated high-strength solid copper wire, CIN end insulators and 50 ft. nylon support rope. Feed with coaxial cable or open-line, rated for legal power. Cutting chart included.

DX-80 For 3.5MHz (75-80 meter band), 133 ft. long **$49.95**
DX-40 For 7 MHz (40 meter band), 66 ft. long..... **$39.95**
DX-20 For 14 MHz (20 meter band), 33ft. long..... **$39.95**

Transi-Trap® Surge Protectors



Alpha Delta Transi-Trap Surge Protectors are gas surge arresters which will protect your valuable ham equipment much more effectively than the lower cost air-gap types.

The heart of the unit is the **Arc-Plug™**, which consists of two electrodes hermetically sealed in a gas filled ceramic cylinder. It acts like a voltage dependent switch that can repeatedly carry large currents for brief periods of time. When a voltage surge occurs on your transmission line, an arc forms between the electrodes allowing it to conduct harmlessly to an independent ground connection, reducing feedline voltage to less than 30 volts. That's protection!

An Arc-Plug can discharge 1000's of normal surges without replacement, and the life of the device is a function of the surge current amplitude and duration. After a sufficient number of discharges there is a gradual lowering of the breakdown voltage and insulation resistance. Replacement indicated by an increase in VSWR. If a unit is "hit" with a big strike, it is designed to fail "shorted", giving an instant indication that replacement is needed. Other brands fail "open", which leaves your expensive equipment unprotected without you knowing it.

Highest quality, finest materials. - heavy cast aluminum housing, brass constant-impedance (50Ω) element, brass ground hardware and only Amphenol connectors are used.

Standard Transi-Trap units are the choice of the U.S. Military, many government agencies, worldwide. Transi-Trap Protectors are designed for 50Ω coaxial cable and are available with standard SO-239 connectors or N-type connectors which extend operation through 1 GHz.

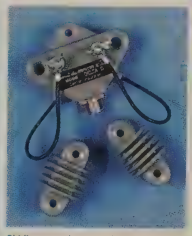
Model RT Rated at 200W thru 500 MHz..... **$32.95**
Model RT/N Rated at 200W thru 1GHz..... **39.95**
Model HV Rated at 2KW thru 500 MHz..... **35.95**
Model HV/N Rated at 2KW thru 1GHz..... **42.95**
Model LT "T"-type, rated at 200W thru 30 MHz..... **22.95**

DX-ULTRA Shortwave Dipole Antenna Covers the AM Broadcast all the way through 30MHz. Provides efficient, low-noise, broadband performance for Medium Wave, Tropical, International SW, Military, Government, Embassy, Maritime, Aircraft, Commercial and Utility frequencies. Designed with *ISO-RES* inductors, parallel wire elements and the exclusive DELTA-C Center Insulator with the built-in SEP ARC-PLUG® Static Electricity Protector. Over all length is just 80 ft. and may be installed as a dipole, inverted-vee, or full sloper. It can be used with an antenna tuner as a transmit antenna up to 2000W. Connectors will accept either coaxial cable or balanced line. Comes fully assembled, ready to go! **$119.95**

Lightning Surge Protected 2 & 4 Position Coax Switches

Alpha Delta Coaxial Antenna Switches are made only in the U.S.A. The extremely high quality custom design features a cast housing with a constant impedance micro-strip cavity for outstanding performance through UHF. No lossy wafer switches are used, and a solid positive detent roller bearing switch drive leaves no-doubt to which position is selected.The unused antenna circuits are automatically grounded to reduce antenna interaction, noise and the effects of lightning. For the antenna circuit that is in use, the famous replaceable **Alpha Delta Arc-Plug™ Cartridge** provides continuous protection. Antenna switched in or out, you're well protected both ways! The Arc Plug is easily accessed through front panel so you may permanently mount the switch to any surface. Both the two and four position models handle full legal amateur power.

DELTA-2 2-position coaxial switch with SO-239 connectors, rated for up to 500MHz..... **$49.95**
DELTA-2/N 2-position coaxial switch with N-type connectors, rated for up to 1.3 GHz..... **$64.95**
DELTA-4 4-position coaxial switch with SO-239 connectors, rated for up to 500MHz..... **$79.95**
DELTA-4/N 4-position coaxial switch with N-type connectors, rated for up to 1.3 GHz..... **$89.95**



Antenna Hardware Kit

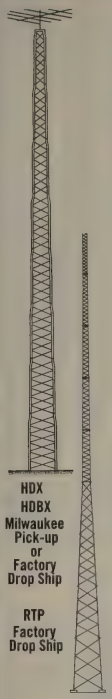
Don't assemble your next dipole antenna without one of these CENTER and END insulator combos. They're designed for strength, and to provide equipment protection with a built-in replaceable SEP ARC-PLUG® Static Electricity Protector. Ideal for dipoles, Vees, zepps and all kinds of SWL receive antennas. Feeds with either coaxial cable or balanced line. Rated for full legal power.

The **SEP ARC-PLUG** protector which is mounted in the DELTA-C center insulator "bleeds off" slow rising static electricity charges and routes them harmlessly to ground, before they can enter the shack thru the feedline. This is far more effective than DC grounded baluns or chokes, which can be "popped" by static charges. Dangerous static charges are developed from thunderstorms, high wind driven snow or desert sand, and have been measured to several thousand volts; so potent, they can actually puncture the dielectric of unterminated coaxial cable.

The **DELTA-C center insulator** and **DELTA-CIN** end-insulators are fabricated with an extremely rugged UV and RF resistant DELTALLOY material that is so tough, you can drop it off a roof without damage. You no longer need to rely fragile ceramic or glass insulators. Only stainless steel hardware used in the center insulator for salt air and other corrosive environments, and all internal connections are hard soldered for highest reliability.

DELTA-C Antenna hardware kit Center insulator, 2 end-insulators, and SEP ARC-PLUG Static Electricity Protector..**$29.95**
DELTA-CIN End-insulators (separate) ..... ea. **$1.00**

Towers & Rotors ...



HDX
HDBX
Milwaukee
Pick-up
or
Factory
Drop Ship

RTP
Factory
Drop Ship

ROHN Heavy Duty HDX-Series Towers for HAM RADIO

All steel with X-brace construction for strength that allows a free-standing configuration without guy wires at 70 mph windspeed.with antennas up to 10 sq. ft. wind area and boom lengths not exceeding 10 ft. The galvanized steel provides an attractive and maintenance-free finish. The entire tower can be assembled on the ground and hinged up in to position with the optional hinged base, or built vertically, section by section. Supplied with BXB base stubs for concrete mounting, rotator plate, mast clamp and hardware. All makes of rotators can be installed on the rotator plate inside of the top section. Tubing furnished that can be held in place with the mast clamp on the top plate to act as a thrust sleeve for a 1-1/4 in. mast.

Model	Height.	Sections	Windload @ 70 mph	Weight	PRICE
HBX-40/BXB-6	40 ft.	5	10 sq. ft.	276 lbs	$399.95
HBX-48/BXB-7	48 ft.	6	10 sq. ft.	353 lbs	499.95
HBX-56/BXB-8	56 ft.	7	10 sq. ft.	444 lbs	629.95

ROHN Heavier Capacity HDBX-Series

Same structural features of the HDX, but capable of up to 18 sq. ft. of antenna capacity at 70 mph wind speed.

Model	Height.	Sections	Windload @ 70 mph	Weight	PRICE
HDBX-40/BXB-7	40 ft.	5	18 sq. ft.	330 lbs	$469.95
HDBX-48/BXB-8	48 ft.	6	18 sq. ft.	422 lbs	619.95

ROHN RTP-Series

A new line of Rohn self-supporting amateur towers designed to the latest EIA revisions. All models are hot dip galvanized after fabrication with a minimum of 2 oz. of zinc per square ft of surface. They are shipped complete with the necessary sections, rotator plate, top plate, short base or foundation hardware, grounding materials and anti-climb warning sign. Some sections are also supplied with step bolts for climbing. The rotator plate is pre-drilled to accept the most popular rotators. The top plate is predrilled to accept a TB-3 thrust bearing for a 2 inch mast or a TB-4 for a 3 inch mast. The thrust bearing is optional and must be ordered separately. These towers are designed for 70, 80 or 90 mph basic wind speeds and to accommodate most amateur antenna loads to heights of 190 feet. Shown here is a selection of popular ham models.

Model	Height.	Sections	Windload @ 70 mph	Weight	PRICE
SSO40D70RPT	40 ft.	2	16.7 sq. ft.	501 lbs	$1199.00
SSO50D70RTP	50 ft.	3	15 sq. ft.	564 lbs	1439.00
SSO60D70RTP	60 ft.	3	15 sq. ft.	1013 lbs	2099.00
SSO70D70RTP	70 ft.	4	13.3 sq. ft.	1076 lbs	2269.00
SSO80D70RTP	80 ft.	4	13.3 sq. ft.	1539 lbs	3119.00
SSO90D70RTP	90 ft.	5	11.7 sq. ft.	1656 lbs	3369.00

Glen Martin Engineering

Featuring a selection of complete Aluminum Tower Packages, Roof-Top Tripods and the Hazer Antenna Tram System. Factory Drop Ship. Price includes 48-State Shipping.

See Price List and Index

U.S. TOWER

Self-supporting steel crank-up towers for various heights and strengths. (3) compact models--TMM-series • (6) standard models-TX-series • 5 heavy-duty models – HDX-series, • 7 tubular crank-up models – MA-series.• accessories • Factory Drop Ship

See Price List and Index

HY-GAIN

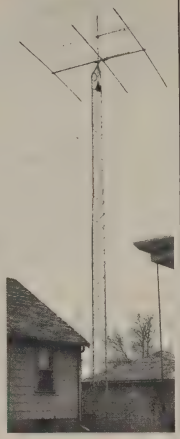
Steel Crank-up Towers

Four Models available: 37, 52, 54 and 70 ft.

Factory Drop-Ship

See Price List and Index

UNIVERSAL Aluminum Towers



UNIVERSAL Model 18-50

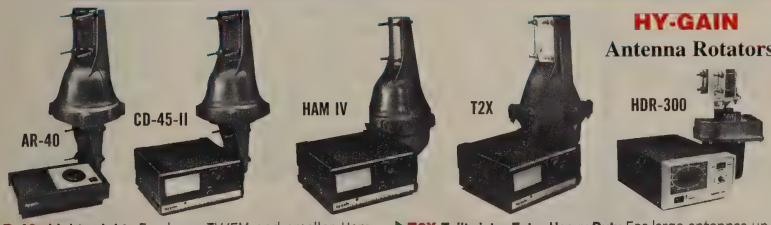
50 ft. self-supporting aluminum tower shown installed at the QTH of W9NHE in Milwaukee, Wisconsin

FREE STANDING ALUMINUM TOWERS

LIGHTWEIGHT • RUST FREE
EASY TO ASSEMBLE & INSTALL
RUGGED • HAM RADIO, TV/FM

Configurations available from 30-100 ft. with various wind load selections to meet almost any application. Self-Supporting – no need for unsightly guy wires at rated load. Factory Drop-Ship. For more info see Price List and the Index for display page.

HY-GAIN Antenna Rotators



▶**AR-40 Lightweight** For large TV/FM and smaller Ham Antennas up to 3.0 sq. ft. windload area when mounted in-tower, or 1.5 sq. ft. mast mounted with supplied lower support bracket. Rotor: 17⅜"h x 8" dia., 12 ball bearings, disc brake. Accepts mast sizes up to 2⅛" diameter. Automatic, silent control box – dial and touch for desired direction. Use Belden 8448 8-wire control cable. 14 lbs. .. **HYG 305 $229.95**

▶**CD-45-II Medium Duty** For antennas up to 8.5 sq. ft. windload area when mounted in-tower, or 5 sq. ft. when mast mounted with supplied lower support bracket. Rotor unit: 17⅜"h x 8" dia., 48 ball bearings, disc brake. Accepts mast sizes up to 2⅛" diameter. Illuminated directional indicator, separate snap action brake and rotation switches. Meter face reversable for N or S center scale, as desired. Use Belden 8448 8-wire control cable. 20 lbs. .... **HYG 302 $329.95**

▶**HAM IV Heavy Duty** For medium-sized antennas with up to 15 sq. ft. windload area mounted in-tower, or 7.5 sq. ft. mast mounted with opt.lower bracket. Rotor: 13½"h x 8" dia., 98 ball bearings, electric locking steel wedge brake. Accepts mast sizes up to 2⅛" dia. Illuminated indicator, separate snap-action brake and rotation switches, North or South center scale. Use Belden 8448 8-wire cable. 24 lbs **(304) $439.95** ▶**HAM V** has DCU-1 control box **(307) $749.95**

▶**T2X Tailtwister Extra Heavy Duty** For large antennas up to 20 sq. ft. windload when mounted in-tower, or 10 sq. ft. mast mounted with optional lower support bracket. Rugged casting –14⅛"h x 9⅝" dia., 138 ball bearings, electric locking steel brake. Accepts mast sizes up to 2⅛" diameter. Illuminated directional indicator, separate snap action brake and rotation control switches, North or South center scale. Use Belden 8448 8-wire control cable. 28 lbs. ....**HYG 303 $529.95**

▶**HDR-300/A Deluxe Extra Heavy-Duty** in tower mount – for large antenna arrays up to 25 sq. ft. windload. Rotor: 7"x 9" x 10"h, 138 ball bearings, solenoid operated locking brake. Accepts masts up to 3" in dia. Digital directional indicator accurate to 1°. Separate brake and rotation controls. Use Belden 8448 8-wire control cable. 55 lbs. ... **HYG 300 $999.95**

Digital Rotator Control Unit

▶**DCU-1** Digital & Analog displays with 6 presets; preprogram your favorite beam headings! The ROTATE knob sets bearing within 1 degree. RS-232 input with pass-thru for computer control. Automatic break delay, motor slow down, automatic calibration, programmable center of rotation. For models T2X or Ham IV .....**HYG 306 $524.95**

PHILLIPS Antenna Rotator

▶**U-105 Antenna Rotator** Drive unit features a one-piece cast aluminum housing, large bearing surfaces, reinforced mast support and a ball bearing for the vertical load. Precision-cut, hardened steel drive train and high torque– well equipped to handle small to medium VHF/UHF amateur and the largest TV/FM arrays. The control unit is smooth and quiet, fully synchronized with the drive unit by synchronous motors.....**$69.95**

Rotation Range	360° +5°-0	Support Mast Size	1¼ –2" dia.
Rotation Time	70 Seconds	Control unit	7"w x 5⅞"d x 2⅜"h
Rotation Torque	8 ft./lbs.	Weight (Rotator + control)	10 lbs
Max. Vertical load	100 lbs.	Control cable (4-wire)	Belden 8484

▶**TB-105 Support Bearing** for or extra-sturdy installation when using the U-105 rotator. Relieves wear and tear on the drive unit imposed by wind loads. All ball bearing design and weather-tight seal. Installs on the support mast above the U-105 .....**$18.25**

YAESU Special Rotators

more rotators ... see other YAESU pages

▶**G-5400B Azimuth-elevation Rotator** For satellite, moonbounce, etc. where both horizontal and vertical rotation is required in a single unit. Full 180° rotation.in 58 seconds; 360°. azimuth rotation time: 50 seconds. Handles 440 lbs of vertical load and masts from 2"–2½" Control box has large dual meters which show zseparate azimuth and elevation indication with ±4% aiming accuracy. Use Belden 8448 8-wire control cable. **$539.95**

▶**G-500A 180° Elevation Rotor** For satellites, moonbounce work, etc. Smooth, 180° elevation rotation time: 60 seconds. Large meter with ±3% aiming accuracy. Accepts boom diameters 1¼"–1⅝". Belden 8448 8-wire control cable **$279.95**

GLEN MARTIN ENGINEERING

TOWERS & HAZER

- No Tower Climbing
- Work on Antennas from the Ground
- Great for Antenna Experimenters
- PRE-ASSEMBLED WITH ANODIZED ALUMINUM
- 18-8 STAINLESS STEEL HARDWARE
- EASY "WALK UP" INSTALLATION - NO GIN POLES!
- **M-13** = 13" face width; **12 Sq. ft. at 87 M.P.H.**
- **M-18** = 18" face width; **16 Sq. ft. at 87 M.P.H.**
- As Easy as Running a Flag up a Flag Pole
- High Quality, Lifetime investment tower
- Simple installation, no special equipment
- No Rust, or leg freeze breaks
- Great in salt air environment
- Best tower for severe cold + icy conditions
- Repair your antennas whenever you need

You NEED the HAZER The Hazer is a unique tram that rides up & down the outside of your **Martin** tower. Raise and lower your antennas by simply turning a winch crank! Hazer 2, 3, 4, 5, 6 wrap around the tower and works best on 50 ft. and lower towers with kevlar guywires. Hazer 7 incorporates it's own separate track. M-1860A & M-1870A includes kevlar guy wire sets for two levels. Kevlar guys are stronger than steel and electrically transparent.

COMPLETE TOWER PACKAGE INCLUDES: **10-FOOT Tower Sections; Concrete footing; Hinged Base, for walk up erection; HAZER, winch, cable, etc; KEVLAR Guy Wire Kit, turnbuckles, earth screw anchors, hardware; Premium Thrust Bearing, 10-Foot Mast and 8 ft. Earth Ground rod. Shipped motor freight prepaid.**

ALL YOU ADD IS CONCRETE, YOUR ROTATOR AND ANTENNAS!

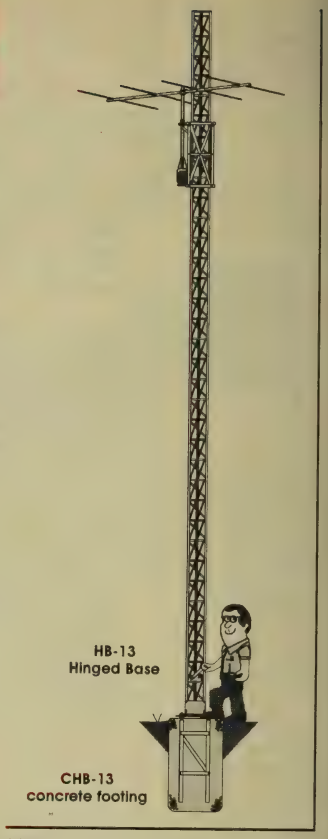
ORDER #	TOWER PACKAGE	FREIGHT PREPAID
M1330A	30 ft., 12 sq. ft., 87 MPH w/Hazer 5	$1539.56
M1340A	40 ft., 12 sq. ft., 87 MPH w/Hazer 5	$1744.56
M1350A	50 ft., 12 sq. ft., 87 MPH w/Hazer 5	$1971.06
M1840A	40 ft., 16 sq. ft., 87 MPH w/Hazer 6	$2047.64
M1850A	50 ft., 16 sq. ft., 87 MPH w/Hazer 6	$2292.64
M1860A	60 ft., 15 sq. ft., 87 MPH w/Hazer 7	$3195.00
M1870A	70 ft., 15 sq. ft., 87 MPH w/Hazer 7	$3485.00

**** HAZERS FOR ROHN 20/25G TOWERS: ****

CAT #	MAX LOAD	WIND ABILITY	MADE OF	UPS PPD
H-2	175 Lbs.	12 Sq. Ft.	Aluminum	$339.95
H-3	150 Lbs.	8 Sq. Ft.	Aluminum	$245.95
H-4	200 Lbs.	16 Sq. Ft.	Galv. Steel	$326.95

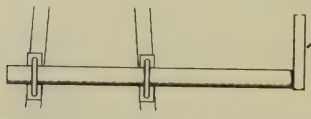
ORDER TODAY! DROP-SHIPPED READY TO GO

PRICES INCLUDE 48-STATE SHIPPING!



ROOF-TOP TOWERS

Side Arm for adding other antennas, weather gear, etc. 7" high by 1-5/16" diameter mast, U bolt mounting hardware included.
24" Long # **RA-6024** $59.50
48" Long # **RA-6048** $76.50



Set of 8 - 3/8 x 5" **Lag Bolts** to attach tower to roof
LB 3755 Lag Bolt Kit $8.95

LR-8400 Lighting Rod Kit 8' alum. tapered point ground rod, mast clamp & leg grounding Lug $148.95
GR-5080 5/8 x 8 ft. copper ground rod $19.00
GR-4400 Ground rod wire clamp $4.85
TL-0470 Terminal lug for tower leg $1.65

#4 Ground Wire (length from tip of mast to ground rod)
CW-2540 25 ft. $18.25
CW-7540 75 ft. $55.00
CW-1240 125 ft. $91.25
CW-5040 50 ft. $36.50
CW-1040 100 ft. $73.00
CW-1540 150 ft. $109.50

Thrust Bearing premium weatherized twin bearing 1.3 to 2.6 mast diameter
TB-25 $79.95

Mast Adaptor Secures non-rotating masts, 1.3 to 2.1dia. two required, one at tower top & one at base of mast **MC-10** $24.95 ea.

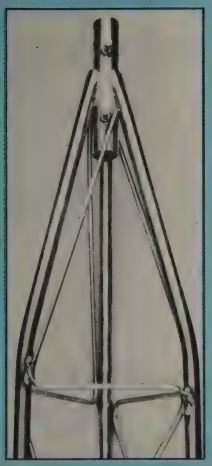
MASTS

M 1049	9' x 2" OD .145 wall galv. steel	30 lbs.	$56.00
MA1049	9' x 2" OD .145 wall alum.	9 lbs.	$64.95
MA2069	9' x 2-3/8" OD .154 wall alum.	12 lbs.	$96.00
MA5050	5' x 1-5/16" OD .145 wall alum.	5 lbs.	$34.95
MA1050	5' x 2" OD .145 wall alum.	7 lbs.	$51.50

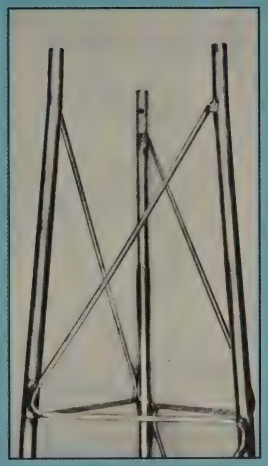
Supports Beams and Quad Antennas
Weather monitors
Scanner & AMSAT Antennas
Aluminum construction
Lightweight yet Extra Heavy Duty
Will not Rust / Stainless Steel Bolts
Four Models to choose from
Made in Boonville, Missouri, USA

MODEL	Height	*D, inches	Base width	Max Ant. in sq. ft. @ 87 mph	100 mph	112 mph	Max. Ant. weight	Shipping weight	Price w/UPS
RT-424	4.5	34.75	24"	6	4.5	3.6	100 lbs.	22 lbs.	$149.95
RT-832	8.0	43.75	32"	8	6	4.8	120 lbs.	36 lbs.	$219.95
RT-936	9.0	43.75	36"	18	13.5	10.5	130 lbs.	78 lbs.	$369.00
RT-1832	17.5	37.62	32"	12	9	7.2	110 lbs.	88 lbs.	$499.95

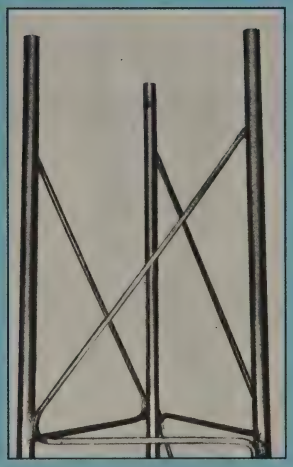
UNIVERSAL TOWERS



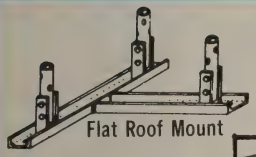
TOP SECTION



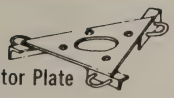
TAPER SECTION



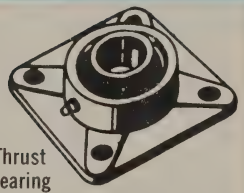
STRAIGHT SECTION



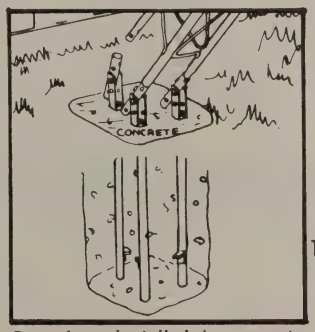
Flat Roof Mount



Rotor Plate



Thrust Bearing



Top Section with Thrust Bearing Plate

Base Legs

Base Legs installed in concrete showing Hinge-Over feature.

To: **AMATEUR ELECTRONIC SUPPLY®**
5710 W. Good Hope Road
Milwaukee, WI 53223

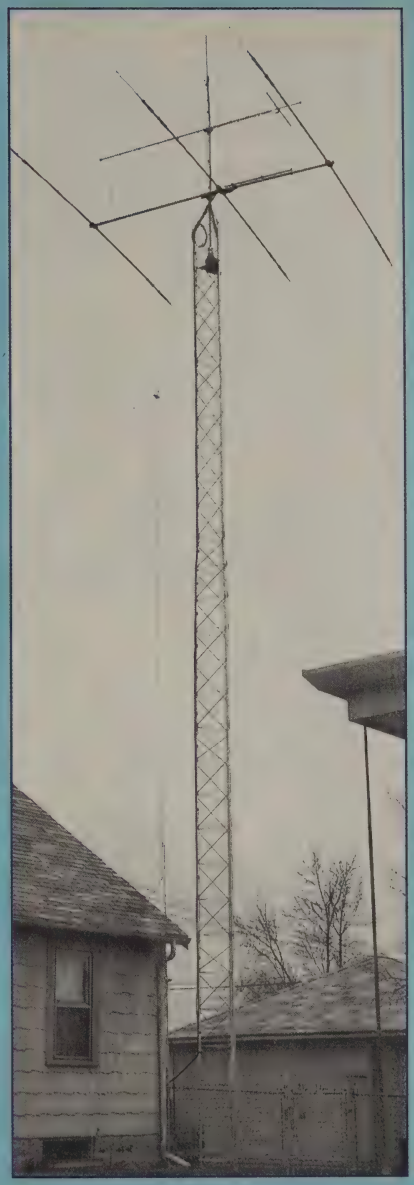
Enclosed is $1.00 ... please send me the latest UNIVERSAL TOWERS Catalog.

Name _____

Ham Call (if any) _____

Address _____

City _____ State _____ Zip _____



Here's a 50 ft. **UNIVERSAL Self-Supporting Aluminum Tower** installed at the QTH of Ted Willett W9NHE. This set up made a **BIG DIFFERENCE** — he really gets out!

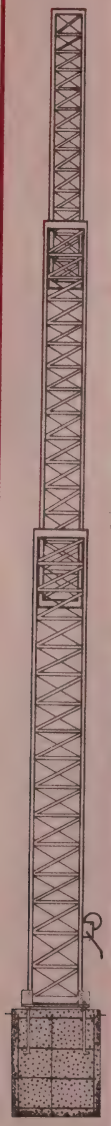
Before you buy a tower consider the advantages of Aluminum — it's Strong, Lightweight, Rust Free and easy to assemble and erect.

UNIVERSAL offers 10 ft. sections or complete towers ranging from 30 to 100 ft. with a choice of wind load ratings and accessories to meet your specific needs.

A listing and description of UNIVERSAL TOWERS is shown in the Price List. For more info fill out and mail the Coupon along with $1.00 to receive their latest Catalog.

U.S. TOWER CORPORATION

Check out our full line of accessories including: ★ Tower Motor Drives ★ 5' to 20' Antenna Masts ★ 20 ft. Chromolly Masts ★ Thrust Bearings ★ Mast Raising Fixtures ★ Rotating bases ★ Coax arms ★ Limit Switch Packages



MA SERIES CRANK-UP TUBULAR TOWERS

Will handle 10 sq. ft. antennas at 50 MPH winds.

MODEL NO.	HEIGHT MAX.	HEIGHT MIN.	NUMBER SECTIONS	WT #	SECTION OD Top	SECTION OD Bot.	BASE SIZE	AES PRICE
MA-40	40 ft.	21'6"	2	242	3" sq.	4½"	3'x3'x4'	$ 679.
MA-550	55 ft.	22'1"	3	435	3" sq.	6"	3'x3x5'	1069.
MA-550MDP*	55 ft.	22'1"	3	620	3" sq.	6"	3'x3'x5'	2618.
MA-770	71 ft.	22'10"	4	645	3" sq.	8"	3'x3'x6'	2258.
MA-770MDP*	71 ft.	22'10"	4	880	3" sq.	8"	3'x3'x5½'	3572.
MA-850MDP*	85 ft.	23'6"	5	1128	3" sq.	10"	4'x4'x6'	4814.

*Standard bases and eve mounts included with all towers (except MA-770, 770-MDP and 850 MDP
• MDP models complete with heavy-duty motor drive with positive pull down.

FREE STANDING HEAVY-DUTY CRANK-UP TOWERS

Will handle 18 sq. ft. antennas at 50 MPH winds.

MODEL NO.	HEIGHT MAX.	HEIGHT MIN.	NUMBER SECTIONS	WT #	SECTION OD Top	SECTION OD Bot.	BASE SIZE	AES PRICE
TX-438	38 ft.	22'	2	355	12½"	15"	3' x 3' x 5'	$1019.
TX-455	55 ft.	22'	3	670	12½"	18"	3' x 3' x 6'	1499.
TX-472	72 ft.	22'8"	4	1040	12½"	21⅛"	4' x 4' x 7'	2529.
TX-472MDP*	72 ft.	22'8"	4	1210	12½"	21⅛"	4' x 4' x 7'	4068.
TX-489	89 ft.	23'4"	5	1590	12½"	25⅝"	4' x 4' x 8⅛'	4399.
TX-489MDPL*	89 ft.	23'4"	5	1800	12½"	25⅝"	4' x 4' x 8⅛'	6598.

*TX-472MDP includes heavy duty motor drive with positive pull down. TX-489MDPL comes with heavy duty motor drive with dual level wind and positive pull down. MDPL models include fully operational limit switch packages.

FREE STANDING HEAVY-DUTY CRANK-UP TOWERS

Will handle 30 sq. ft. antennas at 50 MPH winds.

MODEL NO.	HEIGHT MAX.	HEIGHT MIN.	NUMBER SECTIONS	WT #	SECTION OD Top	SECTION OD Bot.	BASE SIZE	AES PRICE
HDX-538	38 ft	21'6"	2	600	15"	18"	3'x3'x 6¼'	$1319.
HDX-555	55 ft	22'	3	870	15"	21⅝"	4'x4'x 6½'	2309.
HDX-572	72 ft	22'8"	4	1420	15"	25⅝"	4'x4'x 8⅛'	3959.
HDX-572MDPL*	72 ft.	22'8'	4	1600	15"	25⅝"	4'x4'x 8⅛'	6048.
HDX-589MDPL*	89 ft.	23'8"	5	2440	15"	30⅝"	5'x5'x 8½'	7919.
HDX-689MDPL*	89 ft.	23'8"	5	3450	18"	37⅛"	5'x5'x 9½'	15,299.
HDX-5106MDPL*	106 ft.	24'8"	6	3700	15"	37⅛"	5'x5'x9½'	16,649.

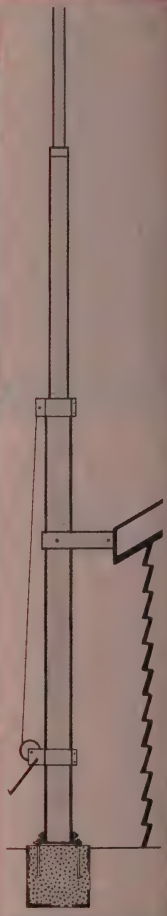
*Includes heavy-duty motor drives with dual level wind and positive pull down. MDLP models include fully operational limit switch packages. *HDX-689MDPL rated 60 sq. ft. of antennal at 50 mph winds. HDX-5106MDPL rated at 35 sq. ft. of antenna at 50 mph winds

FREE STANDING "LOW-PROFILE" COMPACT CRANK-UP TOWERS

Will handle 30 sq. ft. antennas at 50 MPH winds.

MODEL NO.	HEIGHT MAX.	HEIGHT MIN.	NUMBER SECTIONS	WT #	SECTION OD Top	SECTION OD Bot.	BASE SIZE	AES PRICE
TMM-433SS*	33 ft.	11'4"	4	315	10"	18"	3½'x3'x6'	$1089.
TMM-433HD	33 ft.	11'4"	4	400	12½"	20⅞"	3'x3'x5½'	1319.
TMM-541SS	41 ft.	12'	5	430	10'	20⅞"	3'x3'x5⅓'	1429.

* Rotators must be top mounted



PRICE LIST HAS A COMPLETE LIST OF ACCESSORIES

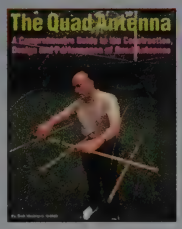
Need More Info?

Get a detailed U.S. Tower Catalog by sending a request to:
Amateur Electronic Supply • 5710 W. Good Hope Road • Milwaukee, WI 53223

Tilt-over Base

CQ Books and Videos

The Quad Antenna

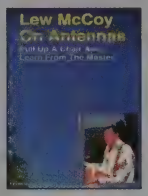


Hams love antenna books and this book is no exception. Written by world renowned author Bob Haviland, W4MB, The Quad Antenna is the authoritative technical book on the design, construction, characteristics and applications of Quad Antennas. Discover how to easily build a quad antenna for your station that will help you fill your logbook with rare DX that you have only dreamed about before. **$15.95**

The Packet Radio Operator's Manual

This book is written by CQ columnist and Amateur Radio Packet authority Buck Rogers, K4ABT. An all new introduction and guide to packet operation, it is the perfect single source, whether you're an advanced user or just starting out. Learn about packet radio without all the technical jargon. Also included are detailed hookups for dozens of radio/packet controller/computer combinations, making this book the definitive resource for the active packet user. **$15.95**

McCoy on Antennas



CQ magazine author and acclaimed authority on antenna theory and design, Lew McCoy, W1ICP, has written a truly unique antenna book that's a must for every amateur. Unlike many technical publications, Lew presents his invaluable information in a casual, non-intimidating way. It's not just an antenna handbook, but a wealth of practical antenna advice for the ham! **$15.95**

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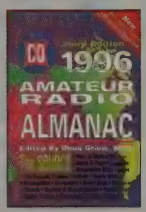
1996 CQ Amateur Radio Almanac, 3rd Edition



If you're looking for information about ham radio, it's in the *1996 Amateur Radio Almanac*. This Sourcebook is filled with over 500 pages of facts, tables, graphs, maps, and other information in an easy-to-read format. Here's just a sample of what's new this year: Amateur Radio Around the World, Expanded Coverage of Internet Computer Services for Hams, New General Class License Question Pool, and Amateur Radio Club Listings. The list goes on! **$19.95**

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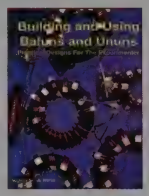

Written by world-renowned expert Jerry Sevick, W2FMI, this volume is the definitive source for his latest practical information and designs on transmission line transformer theory. W2FMI has unraveled the technological mysteries with designs that are simple and work. Discover new applications for dipoles, yagis, log periodics, beverages, antenna tuners, and countless other examples. **$19.95**

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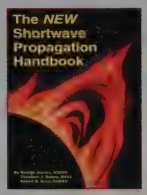

CQ has been a leader for nearly 50 years in providing timely and invaluable information on HF propagation. Thousands of radio amateurs were helped by our first propagation handbook. Now, you can take advantage of the information and techniques presented in this completely updated and revised volume. It's certain to be one of ham radio's classics—and one that will immediately increase your enjoyment of the HF spectrum. **$19.95**

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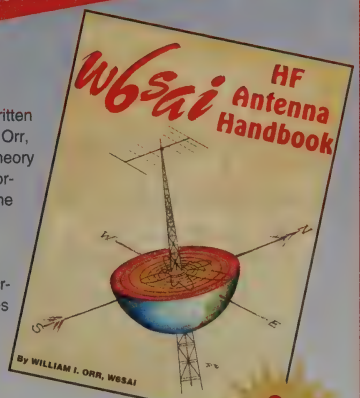

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Pictured above is Ray Grenier, K9KHW, surrounded by his Desktop Publishing system. Ray, our Executive VP, who has been with us for over three decades, is responsible for the production of the AES® Catalog, our flyers, magazine ads and other marketing events, like SuperFest '95 & '96.

Total in-house capability allows us do everything related to advertising. This includes, inputting text, photo scanning and output of the color-separated films that go to CQ & QST for monthly ads and to our printer for catalog production. This awesome capability allows complete graphics control and the ability to react to rapid changes in products and pricing as they occur, without having to rely on an outside service bureau.

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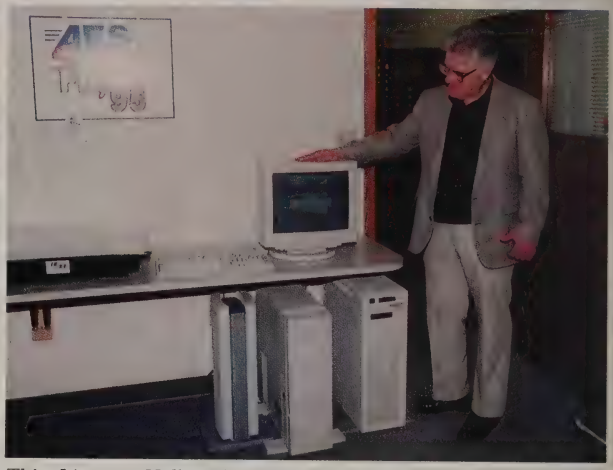
Our catalogs are printed on this Heidelberg-Harris M-300 press, by Sells Printing Co. of New Berlin, WI. The 300,000 copies of this catalog required over 120 tons of paper!



This Linotype-Hell Delta Tower/Interpreter converts language from the Macintosh® system to run the Imagesetter, below.

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Don Ladwig and his CamCorder Display

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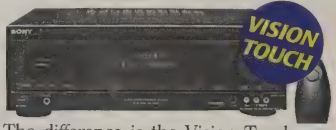

Conventional, unified A/V remotes can have as many as fifty buttons. In contrast, the STR-G3 remote accomplishes the same functions with one. The difference is the Vision Touch on-screen interface. All your choices appear as clear and colorful icons on your TV screen. The system offers on-screen controls not only for the Receiver, but for infrared remote CD players, cassette decks, Mini Disc recorders, VCRs laser disc players and television sets..... **CALL**

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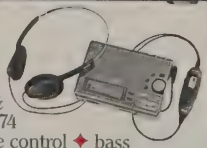
MZ-R3



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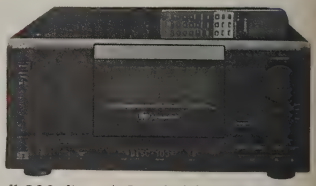
CDP-CX153



✦ 100 disc CD changer with group file system for up to 10 different music categories ✦ Remote input port for use with the CTRL-300 ✦ Flat top for easy integration into component stack ✦ Custom File memory stores disc names and group names for all 200 discs ✦ Jog dial for rapid selection of discs or memo information ✦ Edit navigation ✦ 6 play and repeat modes ✦ Hybrid pulse D/A converter with 4 outputs ✦ 10-key Direct Access Remote Commander remote control ✦ 17 x $7\frac{7}{8}$ x 18 $\frac{1}{2}$" (WHD) ✦ 17" x $7\frac{7}{8}$" x $18\frac{1}{2}$" (WHD), 20 lbs..... **CALL**

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THINGS YOU NEED TO KNOW...

✦ The DSS dish must be mounted facing South in order to work. ✦ Roof mounting is not possible if trees or buildings obstruct the southern view. DSS needs a clear line of sight. ✦ Your local community may have restrictions on satellite antennas.✦ Permission may be needed from the building owner if you live in anything other than a single family residence. ✦ DSS may be viewed on more than one TV and two different channels at once with additional equipment (ask about options!) ✦ DSS programming is a subscriber service, in addition to or instead of regular Cable TV. Call Audio Plus for details! ✦ DSS does not broadcast local affiliates of the major networks such as CBS, NBC, ABC and Fox, therefore a TV antenna may be needed for local area reception.

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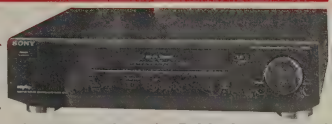

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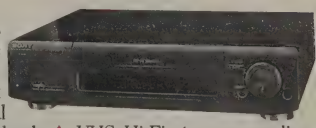

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Over 750 attendees from the surrounding area found plenty to see and talk about. There were the latest Ham Goodies, a fantastic Gordon West seminar, free lunch and Bob Heil, K9EID entertained on the Hammond Organ. Featured were drawings for over 100 prizes, including a Las Vegas trip Grand Prize. People commented that they especially liked the chance to go one-on-one with some of the industry's leading Ham Radio experts and others which included:

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SuperFest Photos by the AES Staff:

ADI/PREMIER • (right) Dennis Dinga, N6DD

AEA • (center) Mike Lamb, N7ML

ARRL/QST • (right) Glenn Swanson, KB1GW

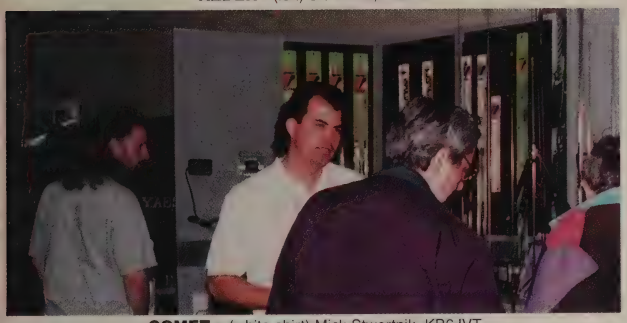
ALINCO • Evelyn Garrison, WS7A; Doug Wynn, KB6YZD; Taka Nakayama, AB6VE

AMERITRON/MFJ/MIRAGE • (left) Richard Stubbs, KC5NSZ & Andy Johnnson

ALPHA DELTA • (center) Shan & Jim Burns, WB4ILP

AZDEN • (left) Sid Wolin, K2LHJ

CQ MAGAZINE • (2nd left) Arnie Sposato, N2IQO



COMET • (white shirt) Mick Stwertnik, KB6JVT

CUSHCRAFT • (right) Ken Albertson, KA1VMR

DIAMOND • (red shirts) Steve LaGaisse, KC6NDG & Merit Arnold, W6NLO

GAP • (red shirt-left) Richard Henf, KD4DQN

GLEN MARTIN ENGINEERING • (2nd from left) Gary Martin, WBØWNQ

GRUNDIG • (left) John Nicolau

HAL COMMUNICATIONS • (right) Mike Broga,W9KVF

HEIL SOUND • (left) Todd McCandless & Bob Heil, K9EID

TELEX/HY-GAIN • (right) Barbara Woerner, KAOGON

ICOM • (left) Ray Novak, KC7JPA

KANTRONICS/RF CONCEPTS • (left) Phil Anderson, WOXI & Karl Medcalf, WK5M

KENWOOD • Loren Pleet, AE6P

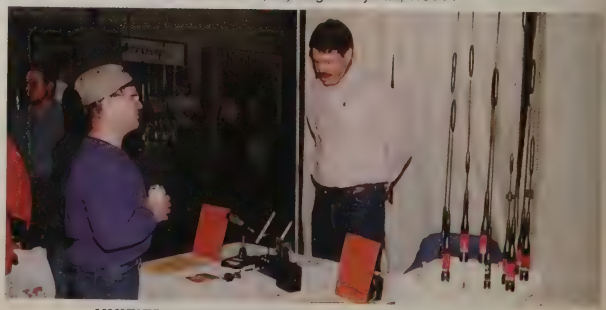
LARSEN • (left) Larsen Flinn

OUTBACKER • (red shirt) Don Arnold, WD4FSY

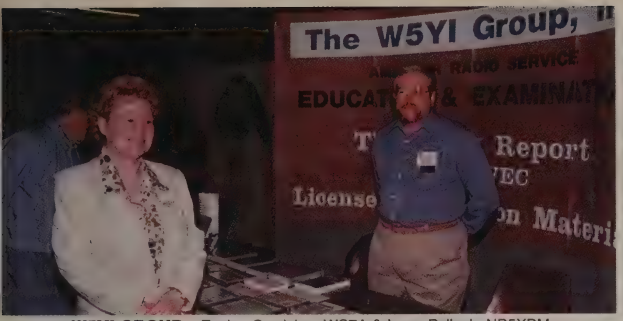
POLYPHASER • (2nd left) Dave Barquist, K9PAK

STANDARD • (left) Roger Wayman, W9TYT

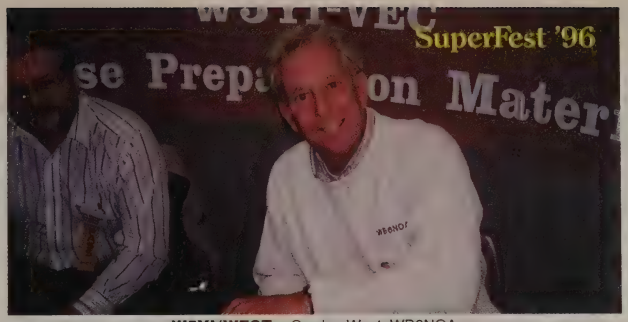
TRIPP LITE • (left) Max Sokol



UNIFIED MICROSYSTEMS • (right) Gary Sutcliffe, W9XT



W5YI GROUP • Evelyn Garrision, WS7A & Larry Pollock, NB5XBM



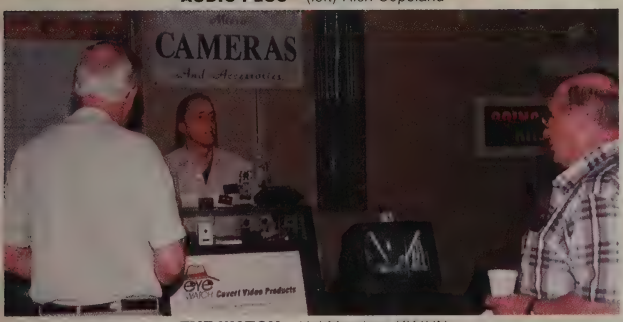
W5YI/WEST • Gordon West, WB6NOA

YAESU • (right) Mike Kerr, KA8EMG

AMATEUR RADIO TRADER • John D'Armond, KA4GZM

AUDIO PLUS • (left) Rich Copeland

ELECTRONIC RAINBOW • (2nd left) Ron Ross



EYE WATCH • Hal Mandery, KK4UN

Lots of Action at SuperFest!

Bob Heil, K9EID entertaining the SuperFest crowd on the Hammond organ

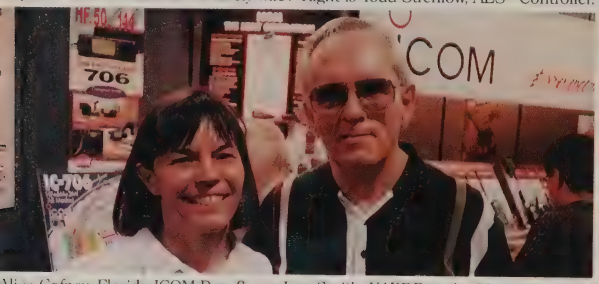
Gordon West, WB6NOA conducting his SuperFest Ham Radio seminar

Gordon West & Don Arnold assist during "Blazing Pickle" demonstration.

(left) Lucky SuperFest Prize Winner and Beth Grenier, our M.C.

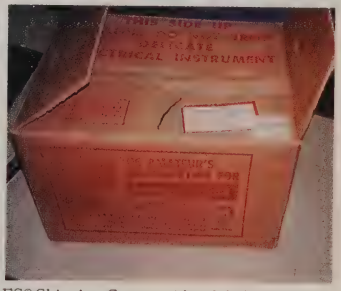
During the Miami Hamfest Ray, K9KHW & Terry, W9DIA had lunch with John Lopez, owner of IRS, and his lovely wife. Right is Todd Strehlow, AES® Controller.

"Old friends" meet at the Miami Hamfest! Ted Andros (left) one of the founders and former part-owner of Hy-Gain Electronics came up behind Terry Sterman, W9DIA (right) and gave him a big bear-hug. Ted and his brother Andy Andros were ham radio pioneers, just like Leo Meyerson of WRL fame.



Alice Gafney, Florida ICOM Rep & our Len Smith, K4BDP at the Miami Hamfest.

AES® geeks visit Merlin's Festival Magic Store in Ft. Lauderdale, FL, owned by Peter Porath, one of Terry's long-time friends, originally from Fond du Lac, WI.



Found at the Toledo Hamfest! An AES® Shipping Carton with a label from 1967. It's used constantly by the owner to pack-up for flea markets. Talk about durability!

Terry, W9DIA recently had a bad voice problem. He was diagnosed by two Milwaukee area throat doctors as having paralyzed left vocal cords, but they weren't able to figure out what caused it.

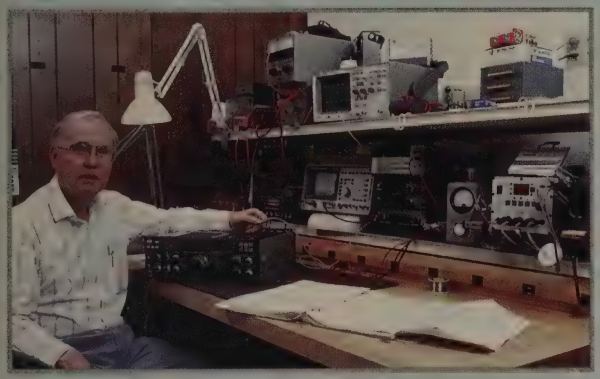
One day, Loren Pleet, Kenwood Sales Manager, was visiting and noticed the trouble that Terry was having talking. He said his father was a throat doctor in Tarzana, California that specialized in difficult to diagnose cases.

Terry visited Dr. Pleet on March 1st, and said he was the first doctor to sit down for 2-hours and thoroughly examine his x-rays, records and CAT scans. Terry's voice seems to be rapidly improving, thanks to Dr. Pleet. Dr. Pleet was very cordial and took the time to answer all of Terry's questions. Terry wishes to thank Loren and Lawrence for their interest in his unusual case. Prior to his recent improvement, Terry sounded like a bad Godfather and was very hard to understand.

38 AES® visits Mike's Electronics in Ft. Lauderdale, after the Miami Hamfest.

Chuck Watters, W4RHE and wife W8UCU at the AES® Orlando store Christmas party.

Our Full Service Department! ... a Great Reason to Buy your Ham Gear from AES®



MILES, K9HMQ – Service Manager • Milwaukee

WE'RE A FULL SERVICE DEALER!

Unlike other Dealers, when you purchase a New Radio from us, our Service Department is able to provide you with Outstanding Technical Service and assistance.

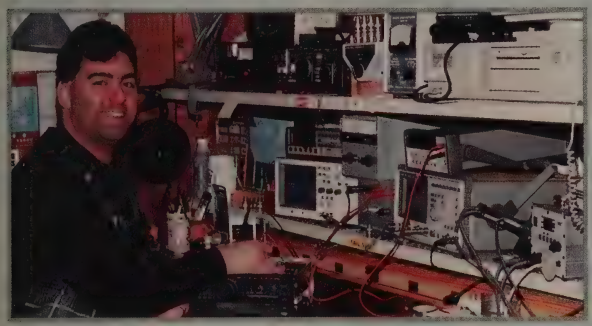
If you have a problem, we are determined to keep you on the air! To do this, we offer Priority Warranty Service on ALL New Radios that we sell. You can be assured that if your New Radio fails within 10 days after receiving it, it will be repaired promptly, or we'll replace it! If a failure occurs after the 10 day priority period, it will be repaired under our **"Warranty Repairs First"** policy, which will get you back on the air with minimum delay.

BILL, WB7SAJ • Milwaukee

TECHNICIANS • We have 8 full-time and 3 part-time technicians. Three are shown in their shops in Milwaukee. Also pictured are: John, WA8PKB in Wickliffe, OH; Gil, K4ISK in Orlando, FL; Ron, KE7LG in Clearwater, FL & Bob, KG7D in Las Vegas, NV.

EXPERIENCE • These technicians are all Factory-Trained on the major brands (ICOM, YAESU, KENWOOD), and others. They have more than 70 years of cumulative experience in the ham service field and are FCC and NABER certified.

WE'RE EQUIPPED TO DO THE JOB! • Each shop uses a state-of-the-art Hewlett Packard 8920A test set, which replaces several pieces of conventional test equipment. It combines twenty-two different instruments including a spectrum analyzer, tracking generator, digital scope, distortion and SINAD meter, all mode signal generator, frequency counter and more! It's highly stable, very accurate and helps speed repairs because it's I-BASIC computer allows the technicians to store custom test parameters for equipment that they frequently service. We also use H-P's digital scopes and DVM's, plus we have the latest in high-tech soldering stations for work on the latest delicate surface mount technology



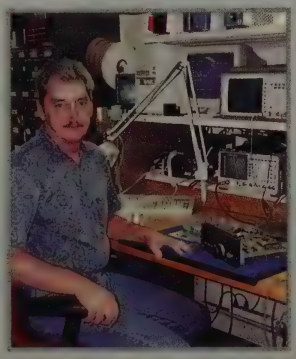
PAUL, N9KEZ • Milwaukee

REPAIRS • Whether you purchased from us or not, we can extend our Professional Technical Service to your "out of warranty late model ham gear. This is on a time available basis, and provided that service parts are still available. To make arrangements, call the AES Service Department in Milwaukee at 414-358-0333; ask for Miles.

LABOR RATES • Our rate for Out-of-Warranty Service is $51.00 per hour. Note: There is a $68.00 minimum charge for service on HF/VHF Base Stations, and a $51.00 minimum charge on VHF Mobiles and Handheld transcivers.

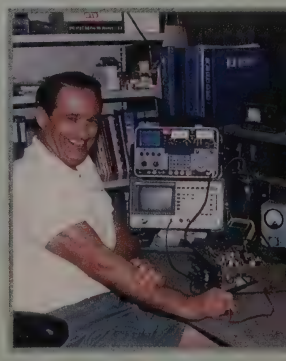
POLICIES AND OTHER INFORMATION • See Index for our Policies, Warranty Information and Telephone Numbers of the Major Manufacturers.

JOHN, WA8PKB • Wickliffe



GIL, K4ISK • Orlando

BOB, KG7D • Las Vegas



RON, KE7LG • Clearwater

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CHRIS N9LBS

DALE N9BRX MGR

DICK KE9QU

GARY L. KA9YTB

GARY S. W9NR

JEFF N9EDQ

JIM

JOHN AB9G

MIKE N9LBQ

MILES K9HMQ

PAUL W9KHO

RAY K9KHW

RICK N9PMR

RON WA9VRY

TOM N9UUJ

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BOB WB8WEN

DAVE WB8BAG MGR

ED N8FIN

JOHN WA8PKB

PHIL WD8ANN

Hablo español

RODRIGO TI2WD

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1-800-327-1917

BRUCE WD4HIM

Hablo español

CHARITY

Hablo español

EDDIE KD4RAZ

GRANT K4IQW MGR

GIL K4ISK

JEFF KC4POD

Hablo español

MARCIAL NP4XB

Hablo español

NATHAN KN4BJ

STUART N4IPX

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LUKE KB7MXP

JOHN

SQUEAK AD7K MGR

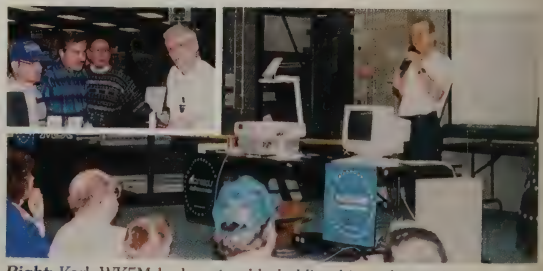
TOM N7GBJ

TERRY W9DIA
Owner

YOUNG TERRY
(King of Traders 1962)

Third **Kantronics Digital Day at AES® Milwaukee** – *another Huge Success!*

n March 30th, Phil Anderson WØXI, President of Kantronics and Karl Medcalf, WK5M his oduct Test Engineer, presented their third Packet Radio and Digital Communications minar at AES® Headquarters in Milwaukee, WI. Over 275 hams attended the four-session, -hour affair which covered the Basics through Advanced Digital Mode operations. A free nch was served and there were Door Prizes, including a Kantronics KPC-3 Grand Prize.



Right: Karl, WK5M had no trouble holding his audience for the entire seminar. ***Inset:*** While Karl was working, Phil, WØXI was holding court in the sales area. They'll both be back soon for a fourth seminar!

All Roads Lead to AES®

MILWAUKEE, WI – Headquarters
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Open Hours: *Monday – Friday 9:00 A.M. - 5:30 P.M. • Saturday 9:00 A.M. - 3:00 P.M.*

Milwaukee, Wisconsin – Headquarters 5710 W. Good Hope Road

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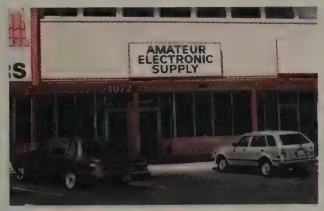

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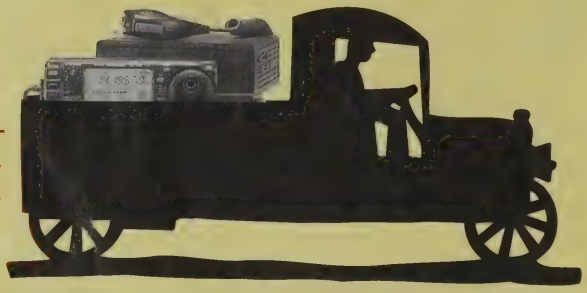

has moved to a Bigger & Better location at:

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New Phone #'s

local: 813-539-7348 • *Toll Free:* 1-888-226-7388

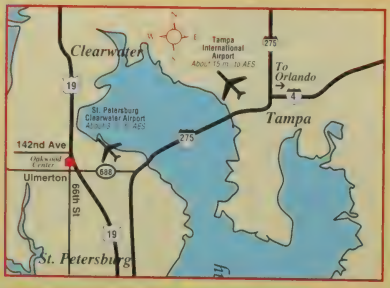
The same knowledgeable fellows are on board to help you with your every Ham Radio need...

LEN, K4BDP

VICTOR, N4COU

DAVE, AB4ZR

RON, KE7LG



When in Florida also visit our ORLANDO Store located at 621 Commonwealth Ave.

Local: (407) 894-3238 • *Toll Free:* 1-800-327-1917

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¡Ningún pedido es demasiado grande o chico!

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Natán KN4BJ

Marcial NP4XB

CHARITY

Some Helpful Abbreviations
ABREVIACIONES IMPORTANTES

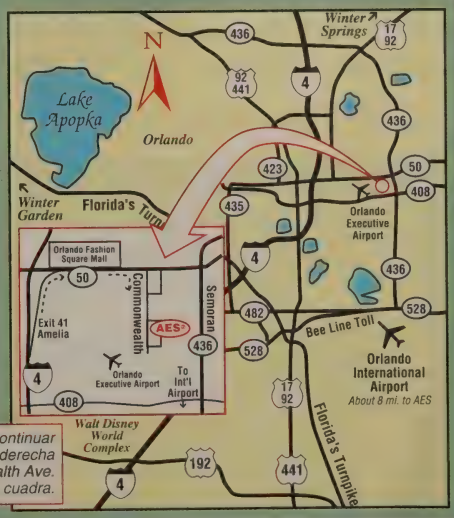
AMP	Amplificador
ANT	Antena
AT	Acoplador automatico de antena
BATT	Batteria
BKT	Braket de montura
BPR	Guarda choque
CGR	Cargador
CIG	Conector cigarillo
CNTR	Contador
DB	Decibeles
DLX	Lujo
DPLX	Duplexador
EL	Elemento
FREQ	Frequencia
GND	Tierra
GTR	Labio de ventana
HT	Radio de mano
HVY	Pesado
KYR	Llave
MA	Miliamperes
MAG	Magnetico
MAINT	Mantemiento
MIC	Microfono
MT	Montura
MTG	Montura
NMO	Montura Motorola
PROG	Programable
PS	Fuente de poder
PWR	Poder
RCVR	Receptor
REM	Remoto
SENS	Sensitividad
SPKR	Bocina
SPLX	Simplex
SYS	Sistema
TTP	Teclado de botones
VOL	Volumen
W/	Con
WPM	Palabras por minuto
XCVR	Transceptor

Para Contactar:
Amateur Electronic Supply® 621 Commonwealth Avenue, Orlando, Florida 32803, EUA
Tel. 1-407-894-3238; Toll Free 1-800-327-1917; Fax. 1-407-894-7553; Internacionales 1-407-898-1166

Forma de pago: El pago que se prefiere es por transferencia de fondos. No se aceptan giros bancarios internacionales. Las tarjetas internacionales de crédito se aceptan únicamente en nuestros salones de venta. Nuestra dirección para la transferencia de fondos es: Barnett Bank of Orlando, Fashion Square Branch, Orlando, Florida. Routing #063103193, para crédito a Amateur Electronic Supply – Acct. #1300009536.

Método de envío: El envío se hará de acuerdo con sus instrucciones. Si UD. no las indicia AES hallará el método más adecuado.

Garantía: La fábrica garantiza sus equipos únicamente dentro de los Estados Unidos. Si su equipo necesitara reparación debe devolverlo a AES con una copia de la garantía y de la factura dentro del plazo autorizado por el fabricante. AES se reserva el derecho de reparar o substituir el equipo que no funcione como diseñado por razones que no resultaron por daño durante envio. Al recibír el equipo que no funcione o por defectos debe notificarse a AES antes de los 10 días después de recibido. El equipo debe empacarse en la caja original usando los materiales de empaque originales. **El costo del envío, tanto de ida como de vuelta, es por cuenta del cliente.** Los precios y garantías pueden cambiarse sin previo aviso. Algunos productos no se pueden ser exportados a ciertos países de acuerdo con las legislaciones locales.



I-4 este hasta la salida 41 (Amelia) continuar parallelo hasta Colonial Dr. Doblar a la derecha 2.6 millas (4.0 kilo) hasta Commonwealth Ave. doblar a la Derecha 1/2 cuadra.

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IMPORTANT INFORMATION

1. Shipping charges are based on the Order Total at the time of the initial shipment. Changes made to a partially shipped order will not affect the shipping charges.
2. The order amount on which charges are determined is pre-coupon and pre-tax.
3. 2nd and 3rd shipments (back-orders) are shipped PREPAID at AES® expense via UPS Ground Service. only).
4. COD fees are not included. Add $6.50 per carton.
5. The Shipping Charge includes adequate insurance.
6. Other UPS methods (Red, Blue & Orange), RPS, Priority Mail, Parcel Post and Federal Express are charged at Regular Rates without any credit for UPS ground rates.
7. Questions? – Check with your salesperson when ordering.

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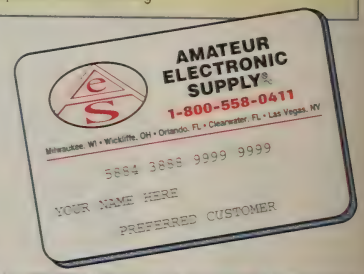
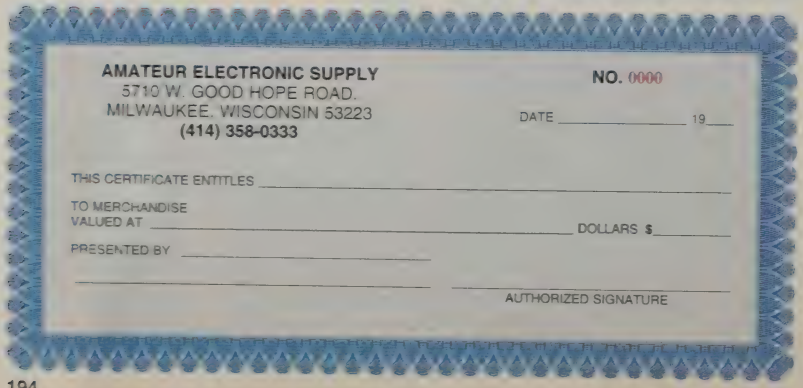
★ No down payment required ★ No payment for 90 Days (Interest Accrues)
★ Low monthly payments ★ No annual fees
★ Quick approval to qualifiers ★ Finance up to $5,000 ... or more!
★ Be an **AES®** Preferred Customer ★ Leaves other major Credit Card lines open
★ Buy the gear you want NOW! Why wait?
★ Get approved now and have your **AES®** Credit Card ready when you need it!



For your convenience AES® also accepts these Major Credit Cards!

Gift Certificates - *Let 'em make the Choice!*



Can't decide what to give that favorite Ham Operator on a Birthday, Anniversary, Holiday, or Special Day?

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You may FAX this order to: (414) 358-3337

ACCOUNT NO. _____ Date _____
Name _____ Call _____
Address _____
City/State _____ Zip _____
You may telephone me at *(Be sure to include area code)*:
Home # _____ Hours: _____
Work # _____ Hours: _____

SHIP TO *(If other than at left)*:
_____
_____
_____

IF YOU HAVE MOVED since your last order, please show your old address:
_____
_____

SHIPPING METHODS Unless otherwise specified, orders are shipped via **UPS Ground** at the FLAT-RATE shown at the bottom. Shipments to APO/FPO & Puerto Rico are via Priority Mail. *For Faster Service* – select one of these express methods: ❒ UPS Next Day Air ❒ 2nd Day Air ❒ 3-Day Select ❒ Federal Express ❒ Express Mail. These alternate methods are not flat-rated so allow for additional shipping charges. Orders exceeding UPS or USPS weight, size or value limits will be shipped via Truck or Air Freight collect *Shipping charges taxable in WI, FL & NV.

TRADE-INS: Use a sturdy carton and plenty of packing material for protection. Ship PREPAID and FULLY INSURED. Do not use Bus or Parcel Post. Collect shipments will not be accepted. AES® assumes no responsibility for damage in transit or for filing damage claims. Canadians, inquire locally about taxes and/or customs charges before releasing your shipment.

Federal Express® Delivery Service Available

QTY.	DO NOT USE	MANUFACTURER • PART OR MODEL # • DESCRIPTION	PRICE EACH	TOTAL

FINAL BALANCE DUE (LINE 10) TO BE PAID BY:

CIRCLE ONE

Account Number

Cardholder's Name — Card Expires

Cardholder's Signature — Date

❒ **CHECK OR MONEY ORDER** • For your own protection **DO NOT MAIL CURRENCY...** send a Bank Check or Money Order. A Personal Check may delay shipping until it clears our bank. Please attach your remittance firmly to the top of this order blank.

❒ **COD • (UPS Ground, only)** The total cost of Merchandise, Shipping Charges and $6.50 COD Fee will be collected in Cash or Certified Check upon delivery.
MINIMUM $20.00 COD ORDER – NO AIR OR PARCEL POST COD's!

IF YOU HAVE A TRADE-IN — CHECK ONE OF THE FOLLOWING:

❒ Hold this order until you receive and approve my Trade-in.
❒ Payment-in-full enclosed. Refund the allowance after my Trade-in is received and approved.
❒ Charge the **FULL AMOUNT** of my order to my Charge Card. Credit my trade-in allowance when my Trade-in is received and approved.

LINE 1 — Total Amount of Order	$
LINE 2 — Subtract TRADE-IN Allowance (if any) ..... Enclose mail quotation or reference telephone quote & list Trade-in items.	–
IMPORTANT! Persons having a Trade-in must check one of the choices in the box at the lower left of this Order Blank.	
LINE 3 — Shipping Charges (see METHODS, and below) ..... *Shipping Charges are taxable in Wisconsin, Florida & Nevada*	+
LINE 4—Sales Tax: ❒ WI- 5.6%, ❒ FL- 6%, ❒ NV- 7%, ❒ OH-5.75% . *For Ohio & Nevada figure tax from LINE 1 (before trade-in allowance)*	+
LINE 5— Subtract here: AES Refund Checks, Gift Certificates or Manufacturer's Coupons (if any)	-
LINE 6 — **Balance**	$
LINE 7 — Due AES from previous order (if any)	+
LINE 8 — Total Amount Due	$
LINE 9 — Amount Enclosed	-
LINE 10 — Final Balance Due (if any)	$

UPS Ground flat-rate Shipping: Orders up to $100.00 ($4.00); $100.01 to $500.00 ($8.00) $500.01 to $1499.99 ($12.00). Orders $1500.00 & Up ($16.00).
Not applicable for other UPS methods, Truck or Drop Shipments.

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Letter	$10.50	$11.25	$12.00	$12.25	$12.50	$12.75	$13.00	$13.25	$13.25	$18.50
1	13.75	15.00	16.75	17.50	18.00	18.50	19.00	22.50	22.00	31.50
2	14.75	16.00	18.50	19.75	20.25	20.75	21.25	24.00	24.25	33.50
3	15.75	17.00	20.25	21.50	22.25	22.75	23.25	25.50	26.75	35.25
4	16.75	18.00	22.00	23.50	24.25	24.75	25.25	26.50	28.50	36.25
5	17.50	19.00	23.75	25.25	26.25	26.75	27.25	28.50	30.75	37.50
6	18.25	20.00	25.75	27.25	28.50	29.00	29.50	30.25	32.75	38.50
7	19.00	21.00	27.75	29.25	30.50	31.00	31.50	32.00	34.75	39.75
8	19.75	22.00	29.75	31.25	32.50	33.00	33.50	33.75	37.00	41.00
9	20.50	23.00	31.75	33.25	34.50	35.00	35.50	35.25	39.00	42.75
10	21.25	24.00	33.50	35.25	36.50	37.00	37.50	37.25	41.25	44.75
11	22.00	25.00	35.25	37.25	38.50	39.00	39.50	40.00	44.00	46.25
12	22.75	26.00	36.75	39.00	40.50	41.00	41.50	41.50	45.50	48.00
13	56.50	27.00	38.25	40.75	42.25	43.00	43.50	42.75	46.75	49.50
14	24.25	28.00	39.75	42.50	44.00	44.75	45.50	44.25	48.00	51.00
15	25.00	29.00	41.25	44.00	45.50	46.50	47.50	46.25	49.50	52.75
16	25.75	29.75	42.75	45.50	47.00	48.00	49.25	48.00	51.00	54.50
17	26.50	30.50	44.25	47.00	48.50	49.75	51.00	50.00	52.50	56.25
18	27.25	31.25	45.75	48.50	50.00	51.25	52.50	52.00	53.75	57.75
19	28.00	32.00	47.25	50.00	51.50	52.75	54.00	54.00	55.00	59.50
20	28.75	32.75	48.75	51.50	53.00	54.25	55.50	55.75	56.25	61.00
21	29.50	33.50	50.25	53.00	54.50	55.75	57.00	57.25	57.25	62.50
22	30.25	34.25	51.75	54.50	56.00	57.25	58.50	58.75	58.25	64.25
23	31.00	35.00	53.25	56.00	57.50	58.75	60.00	60.75	60.00	66.00
24	31.75	35.75	54.75	57.50	59.00	60.25	61.50	61.75	61.00	67.00
25	32.50	36.50	56.25	59.00	60.50	61.75	63.00	62.75	62.00	68.00
26	33.25	37.25	57.75	60.50	62.00	63.25	64.75	64.25	63.50	69.50
27	34.00	38.00	59.25	62.00	63.50	64.75	66.25	65.75	65.25	71.25
28	34.75	38.75	60.75	63.50	65.00	66.50	67.75	67.50	67.25	72.75
29	35.50	39.50	62.25	65.00	66.75	68.00	69.50	69.00	69.00	74.25
30	36.25	40.25	63.75	66.50	68.25	69.50	71.00	70.50	70.75	75.75
31	37.00	41.00	65.25	68.00	69.75	71.25	72.75	71.75	72.00	77.00
32	37.75	41.75	66.75	69.75	71.50	72.75	74.25	72.75	73.00	78.00
33	38.50	42.50	68.25	71.50	73.25	74.50	76.00	74.00	74.25	79.25
34	39.25	43.25	69.75	73.25	74.75	76.00	77.75	75.50	75.75	81.25
35	40.00	44.00	71.25	75.00	76.25	77.75	79.25	77.25	77.50	83.00
36	40.75	44.75	72.75	76.75	78.00	79.50	81.00	78.25	78.50	84.25
37	41.50	45.50	74.25	78.50	79.50	81.00	82.75	80.00	80.00	86.25
38	42.25	46.25	75.75	80.25	81.25	82.75	84.50	82.00	82.00	88.00
39	43.00	47.00	77.25	82.00	83.00	84.50	86.25	83.75	83.75	89.75
40	43.75	48.00	78.75	83.75	84.75	86.25	88.00	85.50	85.50	91.50
41	44.50	49.00	80.25	85.25	86.25	88.00	89.75	87.00	87.00	93.00
42	45.25	50.00	81.75	86.75	88.00	89.75	91.50	88.25	88.25	94.25
43	46.00	51.00	83.25	88.25	89.50	91.25	93.00	89.50	89.50	95.50
44	47.00	52.00	84.75	89.75	91.25	93.00	94.75	90.50	90.50	96.50
45	48.00	53.00	86.25	91.00	92.75	94.50	96.25	91.75	91.75	97.75
46	48.75	54.00	87.75	92.25	94.25	96.00	97.75	92.25	92.25	98.25
47	49.50	55.00	89.25	93.50	95.75	97.50	99.50	93.00	93.00	98.75
48	50.25	56.00	90.75	94.75	97.25	99.25	101.00	93.75	93.75	99.75
49	51.00	57.00	92.25	96.00	98.75	100.75	102.50	95.00	95.00	101.00
50	51.75	58.25	93.75	97.25	100.50	102.25	104.25	96.25	96.25	102.25
51	52.75	59.50	95.25	98.75	102.25	104.25	106.25	97.25	97.25	103.25
52	53.75	60.75	96.75	100.25	104.00	106.00	108.00	98.75	98.50	104.25
53	54.75	62.00	98.25	101.75	105.75	108.00	110.00	100.00	99.25	105.25
54	55.75	63.25	99.75	103.25	107.25	109.75	112.00	101.00	100.00	106.25
55	56.75	64.50	101.25	104.75	109.00	111.75	113.75	103.00	102.00	108.00
56	57.50	65.75	102.75	106.25	110.50	113.75	115.75	104.75	104.50	110.00
57	58.50	67.00	104.25	107.75	112.00	115.50	117.75	107.00	107.00	112.50
58	59.50	68.25	105.75	109.25	113.75	117.50	119.75	109.50	109.75	114.75
59	60.50	69.50	107.25	110.75	115.25	119.50	121.75	111.25	111.75	117.00
60	61.50	71.00	109.00	112.25	116.75	121.25	123.50	113.25	113.75	119.00
61	62.75	72.50	110.75	114.50	119.00	123.50	126.25	115.75	116.25	121.50
62	64.00	74.00	112.50	116.50	121.00	125.50	128.75	117.75	118.25	123.50
63	65.25	75.50	114.25	118.50	123.00	127.75	131.25	119.75	120.25	125.75
64	66.50	77.00	116.00	120.50	125.25	130.00	133.50	121.75	122.50	127.75
65	67.75	78.50	117.75	122.50	127.25	132.25	135.75	123.50	124.25	129.50
66	69.25	80.00	119.50	124.50	129.50	134.25	138.00	125.00	125.50	130.75
67	70.50	81.50	121.25	126.50	131.50	136.50	140.25	126.75	127.25	132.75
68	71.75	83.00	123.00	128.50	133.50	138.75	142.50	128.75	129.25	134.75
69	73.00	84.50	124.75	130.50	135.75	141.00	144.75	130.25	130.75	136.25
70	74.50	86.00	126.75	132.50	137.75	143.00	147.00	132.25	133.00	138.25

ANY FRANCTION OF A POUND OVER THE WEIGHT WHOWN TAKES THE NEXT HIGHER RATE.

2nd DAY AIR

NOT TO EXCEED IN LBS	ZONES 2	3	4	5	6	7	8	*224	225	*226
Letter	$5.50	$5.75	$6.00	$6.25	$6.50	$6.75	$7.00	$10.00	$9.75	$14.00
1	6.00	6.25	6.50	6.75	7.25	7.75	8.00	11.25	10.75	22.50
2	6.25	6.75	7.25	7.50	8.25	8.50	9.00	12.50	12.25	24.00
3	6.75	7.25	8.00	8.50	9.25	9.75	10.00	14.00	14.25	25.50
4	7.25	7.75	8.75	9.50	10.50	11.00	11.50	15.25	15.75	26.75
5	7.75	8.50	9.50	10.50	12.00	12.50	13.00	16.50	17.00	27.75
6	8.50	9.25	10.50	11.50	13.50	14.25	14.75	18.50	18.75	28.75
7	9.00	10.00	11.50	12.75	15.00	15.75	16.50	20.00	20.00	30.00
8	9.50	10.75	12.25	14.00	16.50	17.50	18.25	21.50	21.25	31.50
9	10.00	11.25	13.25	15.25	17.75	18.75	19.50	23.25	22.75	32.50
10	10.50	12.00	14.00	16.25	19.00	20.00	20.75	25.00	24.00	34.00
11	11.00	12.50	15.00	17.25	20.25	21.25	22.00	26.75	25.75	35.00
12	11.50	13.25	15.75	18.25	21.50	22.50	23.25	28.00	27.50	36.25
13	12.25	13.75	16.50	19.25	22.75	23.50	24.50	29.25	29.00	37.00
14	12.75	14.50	17.50	20.25	24.00	24.75	25.75	30.50	30.50	38.50
15	13.25	15.00	18.25	21.25	25.25	26.00	27.00	32.25	32.00	40.75
16	13.75	15.75	19.00	22.25	26.50	27.25	28.25	33.50	33.50	42.25
17	14.25	16.25	20.00	23.25	27.75	28.75	29.50	34.75	34.75	43.25
18	14.75	17.00	20.75	24.00	29.00	30.00	31.00	36.25	36.25	45.00
19	15.25	17.50	21.50	25.00	30.25	31.75	32.75	37.50	37.25	46.00
20	15.75	18.25	22.25	26.00	31.50	33.25	34.50	39.25	38.50	47.25
21	16.25	18.75	23.00	27.00	32.75	34.75	36.25	41.00	40.00	49.00
22	16.75	19.50	23.75	27.75	34.00	36.50	38.00	42.50	41.00	50.25
23	17.25	20.00	24.50	28.75	35.25	38.00	39.50	44.25	42.00	51.50
24	17.75	20.50	25.25	29.75	36.50	39.50	41.00	46.00	43.00	53.00
25	18.25	21.25	26.00	30.75	37.75	40.75	42.50	47.25	44.25	54.25
26	18.75	21.75	26.75	31.50	39.00	42.00	44.00	48.75	45.25	55.50
27	19.50	22.50	27.50	32.50	40.25	43.50	45.50	50.00	46.25	56.50
28	20.00	23.00	28.25	33.50	41.50	44.75	47.00	51.25	47.25	57.50
29	20.50	23.75	29.00	34.25	42.75	46.25	48.50	52.50	48.25	58.50
30	21.00	24.25	29.75	35.25	44.00	47.50	50.00	54.25	49.50	59.75
31	21.50	24.75	30.75	36.25	45.25	49.00	51.50	55.25	50.25	60.50
32	22.00	25.50	31.50	37.00	46.50	50.25	52.75	56.25	51.00	61.25
33	22.50	26.00	32.25	38.00	47.75	51.50	54.00	57.50	51.75	61.75
34	23.00	26.75	33.00	38.75	49.00	53.00	55.50	58.50	52.50	62.25
35	23.50	27.25	33.75	39.75	50.25	54.25	56.75	59.50	53.50	62.75
36	24.00	28.00	34.50	40.50	51.50	55.50	58.00	60.50	54.50	63.75
37	24.50	28.50	35.25	41.50	52.75	57.00	59.25	61.50	55.50	64.75
38	25.00	29.25	36.00	42.25	54.00	58.25	60.75	62.50	56.50	66.25
39	25.75	29.75	36.75	43.25	55.00	59.50	62.25	63.50	57.50	68.00
40	26.25	30.50	37.50	44.00	56.25	60.75	63.50	64.50	58.50	69.75
41	26.75	31.25	38.25	45.00	57.50	62.25	65.00	65.50	59.75	71.00
42	27.25	31.75	39.00	45.75	58.75	63.50	66.25	66.50	60.75	72.00
43	28.00	32.50	39.75	46.75	59.75	64.75	67.50	67.50	61.75	73.00
44	28.50	33.00	40.50	47.50	61.00	66.00	68.75	68.50	62.75	74.25
45	29.00	33.75	41.25	48.50	62.25	67.25	70.00	69.50	63.75	75.25
46	29.50	34.25	42.00	49.25	63.25	68.50	71.25	70.50	64.75	76.25
47	30.00	35.00	42.75	50.25	64.50	69.75	72.50	71.50	65.75	77.00
48	30.75	35.50	43.50	51.00	65.75	71.25	73.75	72.50	66.75	77.50
49	31.25	36.25	44.25	52.00	67.00	72.50	75.00	73.50	67.75	78.00
50	31.75	36.75	45.00	52.75	68.00	73.75	76.25	74.75	69.00	78.75
51	32.25	37.50	45.75	53.75	69.25	75.00	77.50	76.00	70.25	79.50
52	32.75	38.00	46.50	54.50	70.50	76.25	78.75	77.00	71.50	80.50
53	33.25	38.75	47.25	55.50	71.50	77.50	80.00	78.00	72.75	81.50
54	33.75	39.25	48.00	56.25	72.75	78.75	81.25	79.00	74.00	82.50
55	34.25	40.00	48.75	57.25	73.75	80.00	82.50	80.25	75.25	83.75
56	34.75	40.50	49.50	58.00	75.00	81.25	83.75	81.25	76.25	85.25
57	35.25	41.25	50.25	59.00	76.25	82.50	85.00	82.25	77.25	86.75
58	35.75	41.75	51.00	59.75	77.25	83.75	86.25	83.50	78.50	88.25
59	36.25	42.25	51.75	60.75	78.50	85.00	87.50	84.75	79.75	89.75
60	36.75	43.00	52.50	61.75	79.75	86.25	89.00	86.00	81.00	91.25
61	37.50	43.50	53.25	62.50	80.75	87.50	90.25	87.25	82.25	93.50
62	38.00	44.25	54.00	63.50	82.00	89.00	91.75	88.50	83.50	94.75
63	38.50	44.75	54.75	64.50	83.25	90.25	93.00	89.75	84.75	96.50
64	39.00	45.50	55.50	65.50	84.50	91.50	94.50	91.00	85.75	98.00
65	39.50	46.25	56.25	66.50	85.75	93.00	95.75	92.00	87.00	99.50
66	40.25	46.75	57.25	67.25	86.75	94.25	97.25	93.25	88.25	101.25
67	40.75	47.50	58.00	68.25	88.00	95.50	98.50	94.00	89.50	101.75
68	41.25	48.00	58.75	69.25	89.25	97.00	100.00	95.00	90.75	102.50
69	41.75	48.75	59.75	70.25	90.50	98.25	101.25	96.00	91.75	103.50
70	42.25	49.50	60.50	71.25	91.75	99.50	102.75	97.00	92.75	104.50

ANY FRACTION OF A POUND OVER THE WEIGHT SHOWN TAKES THE NEXT HIGHER RATE.

3 DAY SELECT

NOT TO EXCEED IN LBS	ZONES 2	3	4	5	6	7	8
1	$4.30	$4.50	$4.70	$4.90	$5.10	$5.40	$5.60
2	4.40	4.60	4.90	5.50	6.00	6.30	6.60
3	4.80	5.20	5.60	6.20	6.80	7.20	7.70
4	5.10	5.70	6.20	6.90	7.70	8.20	8.80
5	5.50	6.10	6.60	7.30	8.10	8.60	9.20
6	5.90	6.60	7.20	8.00	8.90	9.60	10.20
7	6.30	7.10	7.80	8.70	9.80	10.50	11.30
8	6.70	7.50	8.40	9.40	10.60	11.40	12.30
9	7.10	8.00	9.00	10.10	11.40	12.40	13.40
10	7.50	8.50	9.60	10.80	12.30	13.30	14.50
11	7.90	8.90	10.00	11.20	12.70	13.80	14.90
12	8.20	9.40	10.60	11.90	13.50	14.70	15.90
13	8.60	9.90	11.20	12.60	14.40	15.60	17.00
14	9.00	10.40	11.80	13.30	15.20	16.60	18.00
15	9.40	10.90	12.40	14.00	16.10	17.50	19.10
16	9.80	11.40	13.00	14.70	16.90	18.50	20.20
17	10.20	11.80	13.40	15.20	17.40	19.10	20.90
18	10.60	12.30	14.00	15.90	18.20	19.80	21.60
19	11.00	12.70	14.60	16.60	19.00	20.80	22.70
20	11.30	13.20	15.10	17.30	19.80	21.70	23.70
21	11.70	13.70	15.70	18.00	20.70	22.70	24.80
22	12.10	14.20	16.30	18.70	21.50	23.60	25.80
23	12.50	14.60	16.70	19.10	22.10	24.30	26.60
24	12.90	15.10	17.30	19.80	22.80	25.00	27.30
25	13.30	15.60	17.90	20.50	23.60	25.90	28.40
26	13.70	16.10	18.50	21.20	24.50	26.90	29.40
27	14.10	16.60	19.10	21.90	25.30	27.80	30.50
28	14.50	17.00	19.50	22.30	25.80	27.50	31.20
29	14.80	17.40	20.10	23.00	26.70	29.40	32.30
30	15.20	17.90	20.70	23.70	27.50	30.30	33.30
31	15.60	18.40	21.30	24.40	28.20	31.10	34.10
32	16.00	18.90	21.90	25.10	29.10	32.00	35.10
33	16.40	19.40	22.50	25.90	29.90	33.00	36.20
34	16.80	19.80	22.90	26.30	30.50	33.60	36.90
35	17.20	20.30	23.50	27.00	31.30	34.50	38.00
36	17.60	20.80	24.10	27.70	32.10	35.50	39.00
37	17.90	21.30	24.70	28.40	32.90	36.20	39.80
38	18.30	21.80	25.20	29.10	33.70	37.20	40.80
39	18.70	22.20	25.80	29.80	34.50	38.10	41.90
40	19.10	22.60	26.20	30.20	35.10	38.70	42.60
41	19.50	23.10	26.80	30.90	35.90	39.70	43.70
42	19.90	23.60	27.40	31.60	36.80	40.60	44.70
43	20.30	24.10	28.00	32.30	37.60	41.60	45.80
44	20.70	24.60	28.60	33.00	38.30	42.30	46.50
45	21.00	25.10	29.20	33.70	39.20	43.30	47.60
46	21.40	25.50	29.60	34.10	39.70	43.90	48.30
47	21.80	26.00	30.20	34.80	40.50	44.80	49.40
48	22.20	26.50	30.80	35.60	41.40	45.80	50.40
49	22.60	27.00	31.40	36.30	42.20	46.70	51.50
50	23.00	27.40	32.00	37.00	42.90	47.50	52.20
51	23.40	27.90	32.60	37.70	43.80	48.40	53.30
52	23.80	28.30	33.00	38.10	44.30	49.00	54.00
53	24.20	28.80	33.60	38.80	45.20	50.00	55.10
54	24.50	29.30	34.20	39.50	46.00	50.90	56.10
55	24.90	29.80	34.70	40.20	46.80	51.90	57.20
56	25.30	30.30	35.30	40.90	47.70	52.80	58.20
57	25.70	30.80	35.90	41.60	48.40	53.60	59.00
58	26.10	31.20	36.30	42.00	48.90	54.20	59.70
59	26.50	31.70	36.90	42.70	49.80	55.10	60.80
60	26.90	32.10	37.50	43.40	50.60	56.10	61.80
61	27.30	32.60	38.10	44.10	51.50	57.00	62.90
62	27.60	33.10	38.70	44.80	52.30	58.00	63.90
63	28.00	33.60	39.30	45.60	53.00	58.70	64.70
64	28.40	34.00	39.70	46.00	53.60	59.30	65.40
65	28.80	34.50	40.30	46.70	54.40	60.30	66.50
66	29.20	35.00	40.90	47.40	55.20	61.20	67.50
67	29.60	35.50	41.50	48.10	56.10	62.20	68.60
68	30.00	36.00	42.10	48.80	56.90	63.10	69.60
69	30.40	36.50	42.70	49.50	57.80	64.10	70.70
70	30.70	36.80	43.10	49.90	58.20	64.50	71.10

ANY FRACTION OF A POUND OVER THE WEIGHT SHOWN TAKES THE NEXT HIGHER RATE

ZONE CHART

ZIP CODE PREFIXES . . . ZONE	ZIP CODE PREFIXES . . . ZONE
004-005 5	560-574 4
006-007 .....–	575-577 5
008 .....–	580-582 4
009 .....–	583 5
010-089 5	584 4
090-099 .....–	585-588 5
100-129 5	590-591 6
130-132 4	592-593 5
133-135 5	594-599 6
136-174 4	600-611 2
175-176 5	612 3
177-179 4	613 2
180-199 5	614-619 3
200-214 5	620-622 4
215 4	623-628 3
216 5	629-633 4
217 4	634 3
218-225 5	635-669 4
226 4	670-672 5
227 5	673-674 4
228-229 4	675-679 5
230-239 5	680-689 4
240-268 4	690-693 5
270-286 5	700-722 5
287-289 4	723-727 4
290-299 5	728-732 5
300-306 5	733 6
307 4	734-742 5
308-326 5	743 4
327-339 6	744-768 5
340-341 .....–	769 6
342 6	770-778 5
344 5	779-789 6
346-349 6	790-796 5
350-355 5	797-799 6
356-358 4	800-810 5
359-369 5	811 6
370-386 4	812 5
387-399 5	813-816 6
400-409 4	820 5
410 3	821 6
411-432 4	822-824 5
433-436 3	825 6
437-447 4	826-828 5
448-455 3	829-834 6
456-457 4	835-838 7
458-462 3	840-847 6
463-466 2	850-854 7
467-470 3	855 6
471 4	856-858 7
472-475 3	859-860 6
476-477 4	863-864 7
478-487 3	865-883 6
488-491 2	884 5
492 3	885 6
493-496 2	889-898 7
497-499 3	900-930 7
500-503 4	931 8
504 3	932-933 7
505 4	934 8
506-507 3	935-938 7
508-516 4	939-941 8
520 2	942 7
521-528 3	943-951 8
530-539 2	952-953 7
540 3	954-955 8
541-544 2	956-961 7
545-548 3	962-966 .....–
549 2	967-968 .....–
550-555 3	969 .....–
556-558 4	970-994 7
559 3	995-999 .....–

UPS Ground Shipping is at the AES Flat Rate. The chart below shows faster UPS shipping methods and their rates. This zone chart is for shipments made from the Milwaukee store. The rates from Branch Stores may vary.

NO CREDIT FOR UPS GROUND RATE

CREDIT CARD APPLICATION

CREDIT CARD APPLICATION-PRIMARY APPLICANT

126-CATALOG (10-95)

First Name: _____ M.I.: _____ Last: _____

Date of Birth: _____ Soc. Sec. No.: ___ — ___ — ___ # Dep. (not including yourself) _____

Mailing Address: _____ City _____ State _____ Zip _____

Physical Address (if different than above): _____ City _____ State _____ Zip _____

Home Phone: ( ) _____ Work Phone: ( ) _____

Time at Residence: ____ Yrs. ____ Mos. ☐ Own ☐ Rent ☐ Other _____ Monthly Payment $ _____

Previous Address (NO. & Street): _____ Apt/RR: _____

City: _____ State: _____ Zip: _____ Time at Prev. Res.: ____ Yrs. ____ Mos.

Employer: _____ City: _____ State: _____

Net Monthly Income: _____ Time at Employment: ____ Yrs. ____ Mos. Position: _____ Prev. Employer: _____ Prev. Employment: ____ Yrs. ____ Mos.

Other Household Monthly Income: You need not list income from Alimony, Child Support or Separate Maintenance unless you wish it considered for purposes of granting credit. Net $ _____ Source: _____

PLEASE CHECK ONE OF THE FOLLOWING BOXES: ☐ Checking ☐ Savings ☐ Both ☐ None

CREDIT CARD APPLICATION-CO-APPLICANT

First Name: _____ M.I.: _____ Last: _____

Mailing Address: _____ City _____ State _____ Zip _____

Physical Address (if different than above): _____ City _____ State _____ Zip _____

Home Phone: ( ) _____ Work Phone: ( ) _____

Date of Birth: _____ Soc. Sec. No.: ___ — ___ — ___ Net Monthly Income $: _____

Employer: _____ City: _____ State: _____ Time at Employment: ____ Yrs. ____ Months

Other Household Monthly Income: You need not list income from Alimony, Child Support or Separate Maintenance unless you wish it considered for purposes of granting credit. Net $ _____ Source: _____

CREDIT CARD TERMS (Do not sign without reading)

ANNUAL PERCENTAGE RATE FOR PURCHASES	ANNUAL MEMBERSHIP FEE OR PARTICIPATION FEE	GRACE PERIOD FOR REPAYMENT OF BALANCES FOR PURCHASES	TRANSACTION FEE FOR PURCHASES	LATE PAYMENT FEE	OVER THE CREDIT LIMIT FEE	RETURNED CHECK FEE	METHOD OF COMPUTING THE BALANCE FOR PURCHASES	MINIMUM FINANCE CHARGE
18.9%	None	25 Days	None	$10.00	$10.00	$10.00	Average Daily Balance Method Including New Purchases	None

BY SIGNING BELOW YOU ACKNOWLEDGE, CERTIFY AND AGREE THAT:

(1) you are applying for an open-end credit card account with **AMERICAN GENERAL FINANCIAL CENTER, MIDVALE, UTAH** or for other credit available from its affiliate and **AMERICAN GENERAL FINANCIAL CENTER** may share with its affiliates, any information on this application, and any transactions and experiences between applicant(s) and **AMERICAN GENERAL FINANCIAL CENTER**;

(2) such account is revolving, does NOT have a fixed term and the monthly credit card payments are as set forth in paragraph 21 of the Credit Card Cardholder Agreement which has been given to you;

(3) we may obtain a credit report on you;

(4) if this application is accepted and credit is extended by **AMERICAN GENERAL FINANCIAL CENTER**, you will be bound by the terms of the Credit Card Cardholder Agreement attached hereto, a copy of which has been provided to you to keep;

(5) if your application for a credit card is not approved, your application may be given to our affiliate to review and an offer for a retail installment contract or an installment loan (the terms of which may differ) may be made to you. You are in no way obligated to accept an offer from our affiliate;

(6) **AMERICAN GENERAL FINANCIAL CENTER** may share with its affiliates any information on this application, and any transactions and experiences between applicant(s) and **AMERICAN GENERAL FINANCIAL CENTER**;

(7) the statements above are true and we may rely on them; and

(8) YOU HAVE READ AND UNDERSTAND THE CREDIT CARD TERMS AND THE ATTACHED CREDIT CARD CARDHOLDER AGREEMENT.

PLEASE SIGN _____ PRIMARY APPLICANT SIGNATURE DATE

PLEASE SIGN _____ CO-APPLICANT SIGNATURE DATE

INSURANCE ELECTION OPTION: Please enroll me in the ChargeGard Plan which protects my credit card account as disclosed. Full details of coverages, exclusions and limitations are contained in the Certificates of Insurance which I understand will be mailed to me. I understand and agree that premiums will be charged to my credit card account as long as my account is in good standing. I understand that if my account is cancelled, my ChargeGard Insurance is also cancelled. I may cancel at any time. I understand that enrollment in the Insurance plan is optional and is not required to obtain/maintain credit.

☐ YES, I want ChargeGard Insurance coverage (subject to state availability)

☐ NO, I do not want ChargeGard Insurance.

NY RESIDENTS: No coverage is available in NY.

*Unemployment and disability coverages are available only to the Primary Cardholder.

PLEASE SIGN _____ PRIMARY APPLICANT SIGNATURE (person to be insured) DATE

(MERCHANT USE ONLY)

Initial Purchase: $ _____ Down Payment: $ _____ Salespersons Name: _____

Applicant Driver's License No./State Identification No.: _____ State: _____ Expires: _____

Co-Applicant Driver's License No./State Identification No.: _____ State: _____ Expires: _____

Account Number: _____ Credit Line $ _____

Merchant Name/Number: _____ Dealer Name/Number: _____

Please mail this original, signed application to: Amateur Electronic Supply • 5710 W. Good Hope Rd. • Milwaukee, WI 53223 A photocopy or fax cannot be accepted

YOUR BILLING RIGHTS - KEEP THIS NOTICE FOR FUTURE USE

This notice contains important information about your rights and responsibilities under the Fair Credit Billing Act.

NOTIFY US IN CASE OF ERROR OR QUESTIONS ABOUT YOUR BILL.

If you think your bill is wrong, or if you need more information about a transaction on your bill, write to us on a separate sheet at American General Financial Center, P.O. Box 3212, Evansville, Indiana 47731-3212. Write to us as soon as possible. We must hear from you no later than 60 days after we sent you the first bill on which the error or problem appeared. You can telephone us, but doing so will not preserve your rights. In your letter, give us the following information:

- Your name and account number.
- The dollar amount of the suspected error.
- A description of the error and explain, if you can, why you believe there is an error. If you need more information, describe the item you are not sure about.

YOUR RIGHTS AND OUR RESPONSIBILITIES AFTER WE RECEIVE YOUR WRITTEN NOTICE

We must acknowledge your letter within thirty (30) days, unless we have corrected the error by then. Within ninety (90) days, we must either correct the error or explain why we believe the bill was correct.

After we receive your letter, we cannot try to collect any amount you question, or report you as delinquent. We can continue to bill you for the amount you question, including finance charges, and we can apply any unpaid amount against your Credit Limit. You do not have to pay any questioned amount while we are investigating, but you are still obligated to pay the parts of your bill that are not in question. If we find that we made a mistake on your bill, you will not have to pay any Finance Charges related to any questioned amount. If we didn't make a mistake, you may have to pay Finance Charges, and you will have to make up any missed payments on the questioned amount. In either case, we will send you a Statement of the amount you owe and the date that it is due.

If you fail to pay the amount that we think you owe, we may report you as delinquent. However, if our explanation does not satisfy you and you write to us within ten (10) days telling us that you still refuse to pay, we must tell anyone we report you to that you have a question about your bill. We must tell you the name of anyone we report you to. We must tell anyone we report you to that the matter has been settled between us when it finally is.

If we don't follow these rules, we can't collect the first $50 of the questioned amount, even if your bill was correct.

SPECIAL RULES FOR CREDIT CARD PURCHASES

If you have a problem with the quality of property or services that you purchased with a credit card, and you have tried in good faith to correct the problem with the Merchant, you may have the right not to pay the remaining amount due on the property or services. There are two limitations on this right:

(1) You must have made the purchase in your home state or, if not within your home state, within 100 miles of your current mailing address; and

(2) The purchase price must have been more than $50.

These limitations do not apply if we own or operate the merchant, or if we mailed you the advertisement for the property or services.

CARDHOLDER NOTICES

NOTICE FOR OHIO RESIDENTS: The Ohio laws against discrimination require that all creditors make credit equally available to all credit worthy customers and that credit reporting agencies maintain separate credit histories on each individual upon request. The Ohio Civil Rights Commission administers compliance with the law.

NOTICE FOR NEW YORK RESIDENTS: A consumer credit report may be requested in connection with the application or in connection with updates, renewals or extensions of any credit granted as a result of this application. If you subsequently ask for this information, you will be informed whether or not such a report was requested and if so, the name and address of the agency that furnished the report.

NOTICE FOR MARRIED WISCONSIN RESIDENTS: No provision of a marital property agreement, a unilateral statement under a §766.59 or a court decree under §766.70 adversely affects the interest of the creditor unless the creditor, prior to the time the credit is granted, is furnished a copy of the agreement, statement or decree or has actual knowledge of the adverse provision when the obligation to the creditor is incurred.

NOTICE FOR CALIFORNIA RESIDENTS: Married persons may apply for a separate account. After credit approval, each applicant shall have the right to use this account to the extent of any credit limit set by the creditor and each applicant may be liable for all amounts of credit extended under this account to any joint applicant.

NOTICE FOR MAINE RESIDENTS: A consumer report may be requested in connection with this application and you may, upon request, be informed whether or not a consumer report was requested, and if a report was requested, informed of the name and address of the consumer reporting agency that furnished the report.

All information is current as of 10/95.
To find out about changes in the information in this Application/ Cardholder Agreement, call us at (800) 453-2017 or write to American General Financial Center, Service Center, P.O. Box 3212, Evansville, IN 47731-3212

CREDIT CARD CARDHOLDER AGREEMENT WITH AMERICAN GENERAL FINANCIAL CENTER

1. **APPLICATION TO AMERICAN GENERAL FINANCIAL CENTER**: Each person executing the Application for a credit card cardholder account applies to American General Financial Center (AGFC) for the establishment of an open end credit account. If AGFC accepts the application, credit will be extended for (1) the purchase of goods and/or services from businesses that honor the Credit Card Account and (2) the purchase of financial products or services that AGFC may offer from time to time. Each person executing this Agreement agrees to live up to the terms of this Agreement.

2. **DEFINITIONS**. In this Agreement "We", "Our", and "Us" means American General Financial Center or AGFC. "You" and "Your" means each person who signs the application and Cardholder Agreement. "Credit Card" means the Credit Card issued to you by us under this Agreement. This Account and all purchases made on it are not binding on us until your credit is approved. The application will be deemed approved and the Account established when we (or the merchant) give you notice of that fact. You will be deemed to have accepted the credit card Account and agreed to be bound by the terms of this Agreement by your use of the Account evidenced by a purchase slip.

3. **OWNERSHIP**. The Credit Card remains our property and may be cancelled by us at any time without notice. You, and all authorized users, agree to maintain good credit with all creditors. You, and all authorized users, agree to surrender the Card and any other access devices and to discontinue utilization of the Credit Card Account by any other means immediately upon request.

4. **CREDIT LIMIT**. We will tell you what your Credit Limit is on your Account. You agree not to allow the outstanding balance of your Account to exceed your Credit Limit. We do not have to honor any use of your Account which would cause you to exceed your Credit Limit. If you exceed your Credit Limit we may honor that use of your Account without giving up our rights, and it does not mean that we have to honor other uses which would cause your Credit Limit to be exceeded. We may increase or decrease your Credit Limit at any time.

5. **YOUR RESPONSIBILITIES UNDER THE AGREEMENT**: You agree as follows:

   A. To repay us for all purchases made under the Account, plus Finance Charges and any other charges due under the Account, as described in this Agreement, in accordance with the monthly billing statements we will send you.

   B. That you are responsible for purchases made by any person you allow to use your Card or Account.

   C. Not to allow the outstanding balance to exceed your Credit Limit, but if you do you agree to repay us such excess amount within 10 days after our request. Exceeding the Credit Limit will result in our charging your Account an over-the-credit-limit fee.

   D. Not to allow the Account or Card to be used by anyone other than yourself and authorized users.

   E. To give us credit information as we may request from time to time.

   F. To notify us of a change in your name and address.

   G. To live up to all other provisions of this Agreement.

6. **YOU MAY NOT COMPROMISE A DISPUTE BY NOTATION ON A NEGOTIABLE INSTRUMENT**: No dispute in the amount owed under this Agreement may be settled or compromised by a notation or statement on the back or front of any negotiable instrument intended for payment of the debt or by any document whether or not accompanied by a negotiable instrument which document purports to compromise or settle the debt or have us acknowledge the debt as paid in full by the act of negotiating a negotiable instrument. All such documents or negotiable instruments must be sent to the address for billing errors contained in this Agreement. Any actions arising under this section shall be determined in accordance with Utah law.

7. **RETURNED CHECK FEE**: We may assess, and if assessed, you will pay a returned check fee of $10.00 for any check or other form of negotiable instrument offered in payment on your Account which is presented for payment and which is subsequently not paid.

8. **OVER-THE-CREDIT-LIMIT FEE**: You agree not to exceed the credit limit shown on your monthly billing statement. If you exceed your credit limit, you will be in default, and such default will result in our charging your Account an over-the-credit-limit fee of $10.00 and may result in cancellation of your Account. You agree to repay us the excess amount within 10 days of our request. We may refuse to honor any transaction which would cause you to exceed your credit limit.

9. **LATE PAYMENT FEE**: We may assess, and if assessed, you will pay a $10.00 late payment fee when you fail to make at least the minimum monthly payment within 10 days of the Payment Due Date. Payments are not considered made until date of receipt.

10. **COLLECTION COSTS**: To the extent permitted by law, if we must refer the collection of your Account to an attorney not a salaried employee of ours, you promise to pay us a reasonable attorney's fee and all court and collection costs actually incurred by us in connection with any collection proceeding as may be allowed by law.

11. **CANCELLATION**: We own the Credit Card. You may not assign the Account. On request you must surrender the Credit Card to us or any authorized institution or merchant. We may cancel this Agreement at any time, subject to applicable law. You may cancel this Agreement by sending us a written request for Account cancellation with all your Cards and other means of Account access cut in half. Cancellation will not affect the existing obligations.

12. **DEFAULTS AND ACCELERATION**: All amounts you owe under this Agreement may at our option and without further notice become immediately due and payable if you default under this Agreement. You will be in default under this Agreement if you fail to pay any required amount on time, make any false or misleading statements to AGFC, or otherwise fail to comply with this Agreement. We may cancel your Account and require payment of the full amount you owe us if you die, become bankrupt or insolvent, or if we deem ourself insecure, believing in good faith the prospect of payment thereunder to be impaired.

13. **CHANGES TO THIS AGREEMENT**: We may change the terms of this Agreement from time to time and shall give you notice of the changes as required by law. Such changes may include, without limitation, changes in the monthly periodic rate (and the corresponding Annual Percentage rate) and changes in the method of computing Finance Charges. If we do so, such changes will apply to both the outstanding balance in your Account and future transactions.

14. **LOST OR STOLEN CARD**: You may be liable for unauthorized use of your Card. You will not be liable for unauthorized use that occurs after you notify American General Financial Center, Service Center, P.O. Box 3053, Evansville, Indiana 47730-3053, 1-800-628-9324, orally or in writing, of loss, theft, or possible unauthorized use of your Card or Account. In any case, your liability shall not exceed the lesser of $50 or the amount of the unauthorized use.

15. **DELAY IN TAKING ACTION**: We will not lose any of our rights under this Agreement if we delay taking action for any reason. To the extent allowed by law, we may take other action not listed in this Agreement. If we take other action, we will not lose our rights under this Agreement.

16. **CREDIT INFORMATION**: As required by law, you are hereby notified that if you fail to fulfill the terms of your credit obligations a negative credit report reflecting on your credit record may be submitted to a credit reporting agency. You agree that we may request a consumer credit report on you and may use it in connection with any application for establishment of this Account. You also agree that we may provide information about your account, consumer report information and other information we may have about you to affiliates of ours for possible marketing to you of financial services provided by our affiliates.

17. **APPLICABLE LAW**: This Agreement shall be governed by and interpreted entirely in accordance with the laws of the State of Utah, or, to the extent such laws are superseded by federal law, federal law shall apply. AGFC will process your application, make the decision to approve and open your Account and advance credit for you from our Midvale, Utah office. You agree that all terms, charges, fees and conditions are material to the determination of the Finance Charges, Annual Percentage Rate, and Monthly Periodic Rate.

18. **APPLICATION OF PAYMENTS**:

   A. Payments are allocated between Special Payment Plan Purchases and purchases not made under any Special Payment Plan (here-in Regular Revolving Purchases) in the following priority:

      1. Delinquent Special Payment Plan Purchase balances
      2. Delinquent Regular Revolving Purchase balances
      3. Special Payment Plan Purchases minimum payment due
      4. Regular Revolving Purchases minimum payment due

      Payments in excess of the minimum payment due and delinquent amounts will be applied first to the Regular Revolving Purchases balances and then to the Special Payment Plan Purchases balances.

      Please follow the instructions on your billing statement if you have more than one purchase and wish to apply your payment to a specific purchase.

   B. For that portion of the payment allocated to the Regular Revolving Purchases side of the Account, the payment will apply:

      1. First to the sum of fees and accrued Finance Charges;
      2. then to the previous billed purchases;
      3. then to new purchases.

   C. For that portion of the payment allocated to the Special Payment Plan Purchases side of the Account, the payment will apply first to the delinquent amount of the oldest Special Payment Plan Purchase on the Account, reducing first the interest and then the principal. When the payment clears the delinquent amount of the oldest delinquent Special Payment Plan Purchase, the payment applies to the next oldest delinquent Special Payment Plan Purchase on the Account. When the payment clears all delinquent amounts for Special Payment Plan Purchases, the payment applies to the interest and principal. Interest and/or principal is reduced on Special Payment Plan Purchases in the same sequence as the purchases occurred.

19. **FINANCE CHARGES**: Finance Charges begin on the post date of the transaction. You will avoid Finance Charges on Purchases if you paid the entire New Balance shown on your previous billing statement by the Payment Due Date. If the new balance is not paid in full by the Payment Due Date, Finance Charges will begin to accrue on the Average Daily Balance of Purchases (defined below). This includes previously billed and unpaid Purchases and new Purchases, whether or not billed on your periodic statement, from the post date of the transaction. The **Finance Charge** on your Account is figured by applying the **Monthly Periodic Rate** of 1.575%, which is an **Annual Percentage Rate** of 18.9% to the Average Daily Balance. To get the Average Daily Balance on which Finance Charges are computed, we add the total daily balance of purchases (both previously billed and unpaid purchases and new purchases whether or not billed on your periodic billing statement yet) plus any unpaid balance of purchases under a Special Payment Plan which first became subject to Finance Charges on such day and we deduct any payments or credits. The sum is divided by the number of days in the statement period. (Special Payment Plan purchases which have not become subject to Finance Charges are not included in the Average Daily Balance.)

20. **SPECIAL PAYMENT PLAN PURCHASES**: In addition to Regular Revolving Purchases that earn Finance Charges as stated above, you may from time to time be permitted to make purchases with the following Special Payment Plans which will be specified on your purchase slip:

   A. Deferred Payment Purchases - No payment will be due on the Deferred Payment Purchase for the period specified on the purchase slip; however, Finance Charges will accrue on the date the Deferred Payment Purchase posts to the Account. The Deferred Payment Purchase will not defer the payment due date for other purchases made on your Account.

   B. Deferred Finance Charge Purchases - No Finance Charges will accrue on the purchase for the period specified on the purchase slip; however, regular payments must be made. Finance Charges will not be deferred for other purchases made on your Account.

   C. Deferred Payment and Deferred Finance Charges - No payments are due and Finance Charges will not accrue on the purchase for the period specified on the purchase slip. Finance Charges will accrue and payment must be made for other purchases made on your Account.

   D. Same as Cash - If during the time period (the option period) specified on the front of your purchase slip you pay off the balance of the purchase, no Finance Charges will be assessed on the purchase. However, if the balance of the purchase is not paid during this time period, Finance Charges will be assessed from the post date of transaction. Minimum Payments may be required during the option period as specified on the front of your purchase slip and in this Cardholder Agreement.

   E. Reduced Annual Percentage Rate - Finance Charges will be calculated at a lower annual Percentage Rate than disclosed in the Finance Charges paragraph of the Agreement. The lower Annual Percentage Rate applicable to such special purchases will be disclosed on the purchase slip and on your monthly periodic statement.

21. **BILLING STATEMENT/MINIMUM PAYMENT**: If your Account has a balance, we will send you a Billing Statement (Statement) periodically. You must pay at least the Minimum Payment given on the Statement by the Payment Due date. The Minimum Payment will be the greatest of 3% of the Total New Balance plus the monthly payment amount due on special Payment Plan purchases or $10.00. A total New Balance of less than $10.00 is payable in full.

   You have the right to pay all or part of the balance due under the Account at any time without a prepayment penalty. Payment made in an amount greater than the Minimum Payment does not relieve you of your obligation to pay the next Minimum Payment when it comes due. We will not refund to you a credit balance of $1.00 or less.

   We can accept late payments, partial payments, checks and money, without losing any of our rights under this Agreement. We can also delay in enforcing our rights under this Agreement any number of times without losing them. Also, we may, to the extent permitted by law, take other action not listed in this Agreement.

22. **PLACE TO SEND PAYMENTS**: Payments you make on the Account are to be mailed to the address we set forth on the Monthly Billing Statement.

23. **SECURITY INTEREST**: (Except in New York)

   We will have a purchase money security interest in all goods purchased on your Account until the goods are paid for in full. If you do not make your minimum payments, we may take possession of only the goods that have not been paid for in full. We may require you to make the goods available at a convenient place of our choice. We waive any security interest in your home if the goods are installed therein.

24. **ADDRESS**: You may write us at American General Financial Center, Service Center, Post Office Box 3212, Evansville, IN 47731-3212.

25. **OTHER PROVISIONS**

   (a) We shall have no liability to you should any person refuse to honor your Card or Account, (b) you may not assign your rights under the Account, (c) we may assign our rights without obtaining your consent, (d) any notice given by or to any person executing the Application, or action taken or agreement made by any such person, shall bind all such persons.

26. **EXECUTION OF AGREEMENT**: Your signing the Application also binds you to the terms of this Agreement if we accept your application and extend your credit. You will be given a copy of this Agreement.

★ New York residents may contact the New York State Banking Department to obtain a comparative listing of credit card rates, fees and grace periods. New York State Banking Department 1-800-518-8866.

ANNUAL PERCENTAGE RATE FOR PURCHASES	ANNUAL MEMBERSHIP FEE OR PARTICIPATION FEE	GRACE PERIOD FOR REPAYMENT OF BALANCES FOR PURCHASES	TRANSACTION FEE FOR PURCHASES	LATE PAYMENT FEE	OVER THE CREDIT LIMIT FEE	RETURNED CHECK FEE	METHOD OF COMPUTING THE BALANCE FOR PURCHASES	MINIMUM FINANCE CHARGE
18.9%	None	25 Days	None	$10.00	$10.00	$10.00	Average Daily Balance Method Including New Purchases	None

Manufacturer Phone Numbers & Warranty Information

AEA
2006 196th St. SW Units O & P
Lynnwood, WA 98036
Service/Tech Suppport: 206-775-7373
Sales: 206-774-5554
Upgrade Hot Line: 206-774-1722
Literature Request Line: 800-432-8873
fax: 206-775-2340
Limited Warranty: 1 year

ALINCO
438 Amapola Avenue, #130
Torrance, CA 90501
Customer Service: 310-618-8616
fax: 310-618-8758
e-mail: info@www.alinco.com
Limited Warranty: 1 year parts and labor. Within 15 days of purchase, extended 1 year parts/labor warranty availble from ALINCO.

AMERITRON
P.O, Box 494 • Mississippi State, MS 39762
Shipping: 116 Willow Rd. Starkville, MS 39759
Customer Service: 601-323-8211
fax: 601-323-6551
Limited Warranty: 1 year on all products except 2 years on AL-80B. All tubes are guaranteed by the tube manufacturer

AZDEN
147 New Hyde Park Road
Franklin Square, Ny 11010
Information & Service: 516-328-7501
fax: 516-328-7506
Warranty: 2 years: 1st year, parts and labor; 2nd year, parts only.
Butternut 630-238-1183

COMET (NCG)
1275 N. Grove St • Anaheim CA 92806
Customer Service: 800-962-2611
fax 714-630-7024
Limited Warranty: 90 days

CUSHCRAFT Corporation
P.O Box 4680 • Manchester, NH 03108
Telephone: 603-627-7877
fax: 603-627-1764
Limited Warranty: 1 year against material defects and workmanship.

GLEN MARTIN ENGINEERING
Rt 3 Box 322 • Boonville, MO 65233
Information: 816-882-2734
Limited Warranty: repair or replace within 90 days from purchase

HUSTLER
One Newtronics Place
Mineral Wells, TX 76067
Customer Service: 817-325-1386
fax: 817-328-1409
Limited Warranty: 1 year against material defects and workmanship.

ICOM AMERICA, Inc.
2380 116th Avenue NE • Bellevue, WA 98004
Telephone: 206-454-8155
Customer Service Hotline: 206-454-7619
Parts Department: 206-454-8155
fax: 206-454-1509
BROCHURE Hot line: 206-450-6088
e-mail: tech@icomamerica.com

ICOM AMERICA, Inc. continued
ICOM Regional Customer Service Centers
18102 Sky Park South., Suite 52-B
Irvine, CA 92714
Telephone: 714-852-8026
fax: 714-852-8716
Canada
3071 #5 Road, Unit 9
Richmond, British Columbia
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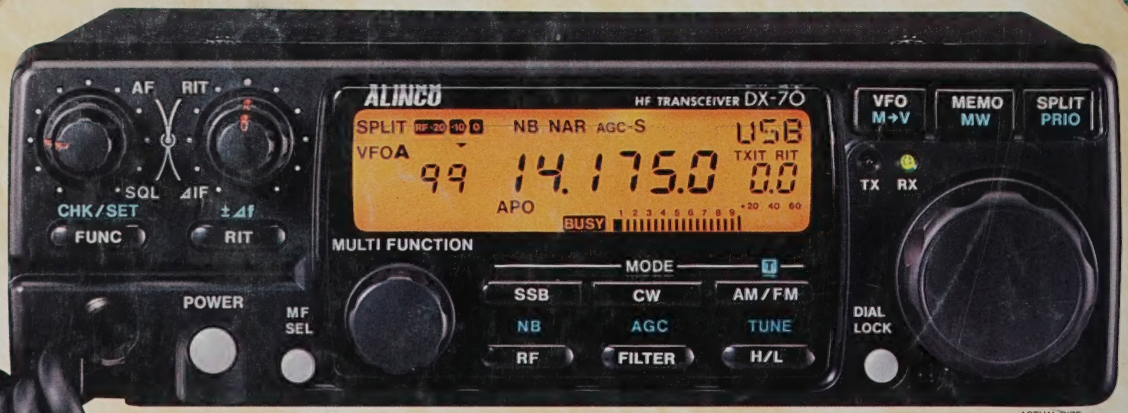

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